

PRELIMINARY (30%) REMEDIAL DESIGN REPORT North Sanitary Landfill Dayton, Ohio

Submitted to

USEPA



Submitted by

Geosyntec 
consultants

engineers | scientists | innovators

931 Chatham Lane, Suite 103
Columbus, Ohio 43221

Project Number: TR0881

April 2021



450 Montbrook Lane
Knoxville, TN 37919
(865) 691-5052
(865) 691-6485 FAX
(865) 691-9835 ACCT. FAX

Via Email

April 19, 2021

Dion Novak
Remedial Project Manager
United States Environmental Protection Agency
Region 5 (SR-6)
77 West Jackson Boulevard
Chicago, Illinois
U.S.A. 60604

**Re: Preliminary (30%) Remedial Design Report
North Sanitary (a.k.a. Valleycrest) Landfill
Dayton, Ohio**

Dear Mr. Novak:

On behalf of the Settling Work Parties (SWPs), and in accordance with the RD/RA Consent Decree for the North Sanitary Landfill (Civil Action No. 3:18-cv-00054), please find enclosed the Preliminary (30%) Remedial Design Report for the North Sanitary Landfill in Dayton, Ohio.

Should you have any questions on the above, please do not hesitate to contact me at (865) 691-5052.

Sincerely,
de maximis, inc.

A handwritten signature in blue ink, reading "Michael H. Samples".

Michael H. Samples
Project Coordinator

MS/jr

Enclosure

cc (via email):

Scott Glum - Ohio EPA
Tim Christman, Ohio EPA
Brad Martin - Toeroek
John Buyers - Geosyntec
Steve Siegel - The Frink Law Firm
VLSG Technical Committee

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Appendix E	Operation and Maintenance (O&M) Manual
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LIST OF ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
ARAR	Applicable or Relevant and Appropriate Requirement
AST	above ground storage tank
BMPs	best management practices
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
City	City of Dayton
COC(s)	chemical(s) of concern
CQA/QCP	Construction Quality Assurance/Quality Control Plan
CRA	Conestoga-Rovers & Associates
cy	cubic yards
EPDM	ethylene propylene diene monomer
ERP	Emergency Response Plan
FML	flexible membrane liner
FSP	Field Sampling Plan
ft	feet
FYR	five-year review
GCCS	gas collection and control system
GCL	geosynthetic clay liner
Geosyntec	Geosyntec Consultants, Incorporated
GW POC	groundwater point of compliance
HASP	Health and Safety Plan
HDPE	high density polyethylene
ICIAP	Institutional Controls Implementation and Assurance Plan
ICs	institutional controls
LEL	lower explosive limit
LFG POC	landfill gas point of compliance
LFG	landfill gas
LGAS	landfill gas abatement system
LLDPE	linear low density polyethylene
MCLs	Maximum Contaminant Levels
NAPL	non-aqueous phase liquid
NOAA	National Oceanic and Atmospheric Administration
O&M	Operation and Maintenance
OAC	Ohio Administrative Code

LIST OF ACRONYMS AND ABBREVIATIONS (cont'd)

Ohio EPA	Ohio Environmental Protection Agency
OPBWA	Off-Property Buried Waste Area
PCBs	polychlorinated biphenyls
PDI	Pre-Design Investigation
PDIER	Pre-Design Investigation Evaluation Report
PDIWP	Pre-Design Investigation Work Plan
POTW	publicly owned treatment works
PRSP	Periodic Review Support Plan
PS	performance standard
PSVP	Performance Standards Verification Plan
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAWP	Remedial Action Work Plan
RBPRGs	risk-based preliminary remediation goals
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RD/RA	Remedial Design/Remedial Action
RDWP	Remedial Design Work Plan
RFB	Request for Bid
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
scfm	standard cubic feet per minute
Site	North Sanitary (a.k.a., Valleycrest) Landfill
SOW	Statement of Work
SWMP	Site Wide Monitoring Plan
SWPs	Settling Work Parties
T&D	transportation and disposal
TCLP	Toxicity Characteristic Leaching Procedure
TODP	Transportation and Off-Site Disposal Plan
TSCA	Toxic Substances Control Act
UECA	Uniform Environmental Covenants Act
USEPA	United States Environmental Protection Agency

SECTION 1

INTRODUCTION

1.1 **Purpose**

This Preliminary (30%) Remedial Design (Preliminary RD) Report presents the concepts of the RD for the North Sanitary (a.k.a., Valleycrest) Landfill (Site) for review by the United States Environmental Protection Agency (USEPA). This report has been prepared by Geosyntec Consultants (Geosyntec) in accordance with the Remedial Design Work Plan (RDWP) (Geosyntec, 2021) on behalf of the Settling Work Parties (SWPs).

The remedial design and remedial action (RD/RA) are being conducted in accordance with the Record of Decision (ROD) (USEPA, 2013). Specifically, this Preliminary RD Report was prepared in accordance with the requirements within the Statement of Work (SOW) Section 3.5, contained in Appendix B of the RD/RA Consent Decree (CD) for the Site (Civil Action No. 3:18 cv 00054).

Overall, the RD will be submitted in the following phased approach:

- This Preliminary RD will address not less than 30% of the total design;
- The Pre-Final RD will address USEPA comments on the Preliminary RD submittal and will represent 95% completion of the total design; and
- The Final RD will address USEPA comments on the Pre-Final (95%) RD submittal and will represent 100% completion of the design including all drawings and specifications ready for bid advertisement.

Concurrent with the submittal of the Pre-Final RD, a Remedial Action Work Plan (RAWP) will be prepared and submitted to the USEPA for approval per SOW Section 7.3 (RA Schedule).

1.2 **Organization of Report**

This Preliminary RD Report addresses the following elements of the RD in the following sections:

Section 1	Introduction
Section 2	Project Information
Section 3	Applicable Permitting and Other Regulatory Requirements
Section 4	Remedial Design
Section 5	Other Site Remedial Activities

Section 6	Performance Standards Verification Plan
Section 7	Contracting Strategy and Project Schedule
Section 8	Transportation and Off-Site Disposal Plan
Section 9	RA Monitoring and Control Measures
Section 10	Long-Term Operation and Maintenance
Section 11	Periodic Review Support Plan
Section 12	Site Wide Monitoring Plan
Section 13	Supporting Deliverables
Section 14	References

To assist in the review of this Preliminary RD Report, **Table 1-1** lists the SOW items and RD deliverables and the location in this Preliminary RD Report where these items are located.

SECTION 2

PROJECT INFORMATION

This section is structured as follows:

- Section 2.1 Site Description
- Section 2.2 Site Background
- Section 2.3 Reference Documents

2.1 Site Description

The Site is located to the northeast of the City of Dayton (City), in Montgomery County, Ohio. The Site location is shown on Drawing D1 and the existing Site conditions are shown on Drawing D2. The Site is a former landfill currently owned by The Keystone Gravel Company, a cancelled company in the State of Ohio. The Site (approximately 102 acres in size) was originally operated as a sand and gravel quarry between approximately 1935 and the 1970s. Industrial and municipal wastes were deposited in the eastern two-thirds of the Site from about 1966 to 1975. Foundry sand and fly ash were deposited in the disposal areas located in the extreme western third of the Site from the early 1970s until 1991. The Site is bisected, roughly in half, by Valleycrest Drive.

2.2 Site Background

A Remedial Investigation/Feasibility Study (RI/FS) was completed at the Site. The Ohio Environmental Protection Agency (Ohio EPA) approved the RI Report (Conestoga-Rovers & Associates [CRA], 2008) in May 2008, and approved the FS Report (CRA, 2011) in March 2011. On July 30, 2012, the USEPA issued an Addendum to the FS Report (USEPA, 2012). The USEPA's decision on the RA to be implemented at the Site is embodied in the ROD (USEPA, 2013).

The United States of America and SWPs entered into a CD on October 30, 2018 (Civil Action No. 3:18 cv 00054) under which the SWPs will perform response actions at the Site. Appendix B (SOW for the RD/RA of the CD) states in Section 1.3 (Scope of the Remedy) that the following tasks are included within the scope of the remedy:

Task 1: Excavation, Treatment, and Disposal of Contaminated Soils and Other Materials (Completed);

Task 2: Consolidation and Capping of Site;

Task 3: Actions to Address Non-Aqueous Phase Liquid (NAPL), Landfill Gas (LFG), and Leachate Contamination, as well as Stormwater; and

Task 4: Institutional Controls, Groundwater Monitoring, and Post-Construction Operation and Maintenance (O&M).

Per SOW Section 3.1 (Pre-Design Investigation), a Pre Design Investigation (PDI) was performed to update existing data to support design and implementation of the ROD, and to identify any changes/modifications of the ROD remedy that may be warranted as part of the RD based on new information in the years since the RI/FS was completed. The PDI field work was performed during the period of March through November 2019 in accordance with the approved PDI Work Plan (PDIWP; [GHD, 2019]). The PDI Evaluation Report (PDIER; [GHD, 2020]) documented the Site investigations performed, the Site investigation results, an updated conceptual site model, the impacts of PDI data on design, and conclusions, recommendations, design parameters and criteria per SOW Section 3.1c.

Regarding SOW Task 1, as stated in PDIER Section 3.2.2 (Sampling), “It is concluded that the PDI soil sampling analytical results indicated all associated material to be non-hazardous and not TSCA-regulated. No treatment, excavation, disposal, or location-specific cap design is necessary; therefore, SOW Task 1 is complete. The proposed RD/RA (i.e., environmental control systems) as required by the ROD will be designed to meet the applicable federal and state regulations for a solid waste landfill”.

2.3 Reference Documents

The following Site reference documents were used to develop the design:

- Remedial Investigation Report (CRA, 2008)
- Feasibility Study Report (CRA, 2011) and Addendum to the Feasibility Study Report (USEPA, 2012)
- Record of Decision (USEPA, 2013)
- Consent Decree (Civil Action No. 3:18-cv00054, 2018)
- Pre-Design Investigation Work Plan (GHD, 2019) and Pre-Design Investigation Evaluation Report (GHD, 2020)
- Remedial Design Work Plan (Geosyntec, 2021)

SECTION 3

APPLICABLE PERMITTING AND OTHER REGULATORY REQUIREMENTS

This section is structured as follows:

Section 3.1 Permits

Section 3.2 Applicable or Relevant and Appropriate Requirements (ARARs)

Section 3.3 Guidance

3.1 Permits

Section 121(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.400(e) of the National Hazardous Substance and Oil Contingency Plan specifies that no permits necessary for implementation of the remedial action are required for activities conducted entirely within or in very close proximity to the areal extent of impacts (i.e., the Site). Accordingly, Federal, State, county, and local permits are not required to implement the remedial action, but the RD will provide for compliance with ARARs and meeting substantive or equivalent permitting requirements.

Examples of permit equivalency would be requirements related stormwater best management practices (BMPs) during RA construction as required by National Pollutant Discharge Elimination System permit.

3.2 ARARs

ARARs were presented in ROD Section 8.3 and reproduced in the RDWP (Geosyntec, 2021). In Section 4 of this Preliminary RD Report, each applicable ARAR is discussed in coordination with its associated RD component.

3.3 Guidance

SOW Section 9.3 (References) lists potentially applicable references and guidance documents, including among others:

- Guidance for Scoping the Remedial Design, OSWER 9355.0-43, EPA/540/R-95/025 (March 1995)
- Remedial Design/Remedial Action Handbook, OSWER 9355-04B, EPA/540/R-95/059 (June 1995)

SECTION 4

REMEDIAL DESIGN

The general containment system of the proposed remedy of consolidating material into a solid waste landfill incorporates features which meet or exceed applicable local, state, and federal regulations. Similar systems have been implemented at many other modern landfill facilities, and through their performance, have shown the RD of a solid waste landfill to be protective of public health and the environment. Using a cap and leachate and LFG management systems, and NAPL recovery, the goals of the RD are to control and minimize the migration of contaminants, contain contaminants within the landfill boundary, and collect contaminants through the extraction systems. Long-term monitoring will confirm if the performance of the landfill has achieved these goals.

Per the ROD and RDWP, this section contains the preliminary design for each remedy element and is structured as follows:

- Section 4.1 Excavation and Consolidation of Off- and On-Site Materials
- Section 4.2 Solid Waste Landfill Cap
- Section 4.3 Stormwater Management
- Section 4.4 NAPL Recovery System
- Section 4.5 Leachate Management System
- Section 4.6 LFG Management System
- Section 4.7 Institutional Controls
- Section 4.8 Groundwater Point of Compliance
- Section 4.9 USEPA Principles for Greener Cleanups

A list of Drawings is presented in **Table 4-1** with Preliminary RD Drawings provided in **Appendix A**. A preliminary list of specifications to be prepared during the Pre-Final RD is presented in **Table 4-2**.

4.1 Excavation and Consolidation of Off- and On-Site Materials

4.1.1 Overview

The goals of excavation and consolidation of off- and on-Site materials are to ensure that waste materials are within the Property boundary or property controlled by the SWPs, promote and maintain positive stormwater grades on the proposed landfill cap, and to reduce the area requiring capping. This remedy element will include excavating, relocating, and consolidating the materials from the Off-Property Buried Waste Area (OPBWA) and Disposal Area 4 with those at Disposal Areas 1, 2, 3, and 5. The proposed final waste elevations and waste excavation grades for each disposal area are provided in Drawing D4. Cap construction over the consolidated waste is discussed in Section 4.2.

4.1.2 Pre-Design Investigation

The PDIER presented the results of subsurface materials investigations that concluded that there are no restrictions for excavating, relocating, and consolidating the materials from the OPBWA and Disposal Area 4 with those at Disposal Areas 1, 2, 3, and 5, as shown on SOW Exhibit 5 (Proposed Cap Area & Existing Borrow Area – see SOW Appendix A) (GHD, 2020).

4.1.3 Design Criteria & ARARs

This Preliminary RD for excavation and consolidation of off- and on-Site materials was completed in accordance with the SOW and RDWP. All applicable RD/RA elements will be conducted in accordance with Ohio Administrative Code (OAC) 3745-27-13 (Procedure to Engage in Filling, Grading, Excavating, Building, Drilling, or Mining on Land where a Hazardous Waste Facility or Solid Waste Facility was Operated) (Solid Waste and Infectious Waste Regulations).

4.1.4 Analysis

The removal of all waste from the OPBWA and Disposal Area 4 will be verified by visual inspection and the removal of a minimum of 6 inches of subbase material below excavated waste. Additional details will be provided in the finalized Construction Quality Assurance/Quality Control Plan (CQA/QCP). A preliminary CQA/QCP is provided in **Appendix B**.

Evaluation of the need for, and design of (if necessary), dewatering systems during Disposal Area 4 excavation will be completed during the Pre-Final RD. The RI identified no leachate in Disposal Area 4. The RI and PDI found the bottom of Disposal Area 4 waste to be at an elevation of approximately 742.7 feet (ft) above mean sea level (AMSL) whereas the PDI found the water table in this area to be slightly lower at approximately 740 ft AMSL. Any surface water that contacts waste while still in the original location and being excavated will be managed as leachate. In order to minimize stormwater/waste contact, waste excavation will be performed during dry periods and at the end of the day covered with soil or other alternate daily cover.

4.1.5 Remedy Description

The objectives of excavating, relocating, and consolidating the materials from these areas are as follows:

- a. Excavate the OPBWA and consolidate within the Site boundaries.
- b. Fill, grade, and revegetate the former OPBWA to match existing grades and drainage patterns.
- c. Excavate Disposal Area 4 and relocate to Disposal Areas 1, 2, 3, and 5 to be used as grading fill. A portion of Disposal Area 4 may be screened for use as engineered subbase or bedding material subject to appropriate soil testing requirements approved by the Agencies which will be discussed in the Pre-Final RD.
- d. Develop an erosion and sediment pollution control program for use during construction using BMPs and that meets the substantive Federal and State stormwater management regulations applicable to land disturbance. Additional details will be provided in the Pre-Final CQA/QCP.
- e. After excavation and relocation of materials, the former Disposal Area 4 will be used along with the existing designated area for future stormwater management as discussed in Section 4.3.
- f. Based on the proposed final landform grading to promote stormwater drainage and to minimize waste excavation activities in Disposal Area 2, the estimated 160 cubic yards (cy) of Disposal Area 2 waste on City Lot 74625 will be capped in place.
- g. Properly decommission Main Aquifer well NSL-38D (located in the middle of Disposal Area 1) and three former production wells (in the vicinity of the borrow area) during remedy construction.

Applicable Drawings (**Appendix A**) include:

- Drawing D2 – Existing Site Conditions and Utilities;
- Drawing D3 – Bottom of Waste Elevations;
- Drawing D4 – Top of Proposed Final Waste Elevations & Waste Excavation Grades;
- Drawing D5 – Final Landform Grades;
- Drawing D7 – Typical Final Cover, Leachate, & Landfill Gas System Details; and
- Drawing D10 and D11 – Engineering Cross-Sections.

4.2 Solid Waste Landfill Cap

4.2.1 Overview

Solid waste landfill capping will require landfill grading and cap construction as discussed below. The goals of landfill grading and cap construction are to promote positive stormwater drainage, thereby minimizing infiltration of stormwater into the waste and leachate generation. Reducing the fill volumes will minimize post-capping settlement and associated impacts on the cap, leachate, and LFG management systems. Designs specific to stormwater management are discussed in Section 4.3.

4.2.2 Pre-Design Investigation

The PDI confirmed that a solid waste landfill cap is appropriate for all Disposal Areas at the Site.

4.2.3 Design Criteria and ARARs

This section presents the design criteria and ARARs included in the ROD and additional design criteria applicable to the solid waste landfill cap. The required landfill standards and related ARARs are contained primarily in OAC 3745-27-08 and OAC 3745-27-11.

Landfill Grading ARARs

As discussed in the ROD and SOW, the cap system is not required to meet the usual 5% minimum slope grade requirement (in all areas except where surface water control structures are located).

Cap Construction

SOW Section 1.3b.(2) and (3) require that Disposal Areas 1, 2, 3, and 5 be covered with a solid waste composite cap system designed in accordance with OAC 3745-27-08 and OAC 3745-27-11. The ARAR-compliant cap design includes (from top to bottom): 6-inch vegetative layer, 6-inch common fill layer, 12-inch sand drainage layer having a minimum permeability of 1×10^{-3} cm/sec (totaling a 24-inch cap protection layer), flexible membrane liner (FML), geosynthetic clay liner (GCL), and 6-inch engineered subbase, as shown in Drawing D7.

Vegetative Layer

The landfill cap will include a vegetative layer (topsoil) having a minimum thickness of 6 inches. The vegetative layer shall be constructed in a manner such that healthy grasses or other vegetation can form a complete and dense vegetative cover not later than 1 year after placement in accordance with OAC 3745-27-08.

Fill Layer

The landfill cap will include a fill layer having a minimum thickness of 6 inches below the vegetative layer. The fill layer will serve as a protective layer and be composed of natural soil.

Sand Drainage Layer

The landfill cap will include a sand drainage layer having a minimum thickness of 12 inches below the fill layer. The sand drainage layer will have minimum hydraulic conductivity of 10^{-3} cm/sec.

The sand drainage layer will convey water to the perimeter of the new cap system. An engineering detail will be developed as part of the Pre-Final RD to illustrate how the sand drainage layer will drain to the stormwater management system.

Flexible Membrane Liner

The landfill cap will include a FML below the sand drainage layer. The FML will have welded seams meeting the specifications of OAC 3745-27-08. The following design criteria are selected:

- The FML shall be installed using good construction practices under a CQA/QCP;
- The seams of all FML sheets shall be fusion or extrusion welded; all seams shall be leak tested;
- The FML layer shall be resistant to anticipated differential settlement (settlement analysis to be completed as part of the Pre-Final RD);
- The FML shall be resistant to freeze-thaw effects and construction conditions; and
- Though not anticipated, on slopes greater than 10% the FML shall be textured to increase friction resistance against sliding.

Based on manufacturing literature and previous project experience, 40-mil thick, linear low density polyethylene (LLDPE) will be used for the FML. Alternate materials such as high density polyethylene (HDPE), polyvinyl chloride (PVC), or ethylene propylene diene monomer (EPDM) may be included as part of the Pre-Final RD. The FML will be underlain by a GCL as a low permeability layer as discussed below.

Geosynthetic Clay Liner

The landfill cap will include a GCL below the FML. In addition to the specifications for GCLs provided in OAC 3745-27-08, the following design criteria were selected:

- The GCL shall be installed using good construction practices under a CQA/QCP;
- The seams of all GCL sheets shall be constructed in accordance with the manufacturer's specifications;

- The GCL layer shall be resistant to anticipated differential settlement (settlement analysis to be completed as part of the Pre-Final RD); and
- The GCL shall be resistant to freeze-thaw effects and construction conditions.

The specific manufacturer and GCL to be used will be determined during the Pre-Final RD.

Engineered Subbase

The landfill cap will include an engineered subbase having a minimum thickness of 6 inches below the GCL. In addition to the specification for subbase provided in OAC 3745-27-08, the subbase material shall have no objects (rocks and debris) greater than 1 inch in the maximum dimension on the surface in contact with the GCL.

Access Road

Access roads will be established after cap construction to maintain access to different landfill units for maintenance and inspection purposes. Details of the access road design and specific materials to be used will be assessed during the Pre-Final RD. The road shall be constructed on top of the fill layer. The vegetative layer will not be required underneath the access road.

Construction Quality Assurance

The cap shall be constructed and monitored under a CQA/QCP in accordance with OAC 3745-27. A preliminary CQA/QCP is provided in **Appendix B**.

4.2.4 Analysis

Slope Stability

Per ROD Section 10.2 (Compliance with ARARs), a preliminary stability analysis has been performed in accordance with Ohio EPA's "Geotechnical and Stability Analyses for Ohio Waste Containment Facilities" (September 14, 2004) to demonstrate that the cap can and will be designed and constructed such that positive drainage is achieved and maintained.

Due to the flatness of the proposed preliminary final landform grades (less than 5%) and stability of existing grades, slope stability is not expected to be a concern or influence current and future design decisions, and therefore a slope stability analysis is not needed as part of the RD.

Settlement

Due to the flatness of the proposed preliminary final landform grades and limited thickness of waste and of the cap, settlement should not be a concern or influence design decisions. Settlement will be evaluated during the Pre-Final RD.

4.2.5 Remedy Description

This section provides a summary of the elements of the solid waste landfill cap portion of the remedy described from the top of the cover downward. Applicable Drawings (**Appendix A**) include:

- Drawing D2 – Existing Site Conditions and Utilities;
- Drawing D3 – Bottom of Waste Elevations;
- Drawing D4 – Top of Proposed Final Waste Elevations & Waste Excavation Grades;
- Drawing D5 – Final Landform Grades;
- Drawing D7 – Typical Final Cover, Leachate, & Landfill Gas System Details; and
- Drawing D10 and D11 – Engineering Cross-Sections.

Landfill Grading

A preliminary final landform grading plan incorporating an “inverted sawtooth” pattern is provided in Drawing D5. The preliminary final landform incorporates interior stormwater management features (slopes and channels) to minimize fill material needs and address construction challenges of installing perimeter stormwater ditches around portions of the Site where there is limited space between the existing waste boundary and property line.

The peak height of the final landform is controlled largely by the perimeter cross-section elements including perimeter stormwater ditch, groundwater monitoring wells, available space, and the associated minimum grades to promote positive stormwater drainage. The landfill grading may be further evaluated during the Pre-Final RD to optimize material balance (i.e., cut/fill volumes during RA construction).

Several design features will be incorporated into the Pre-Final RD to minimize subgrade fill material needs, but soil materials for both subgrade fill and final cover protective soils will be needed. A soil acquisition plan will be developed, for both subgrade fill and protective soils, during the Pre-Final RD and bid process to assist in acquisition of off-Site soils. The soil acquisition plan will identify specifications per Ohio EPA requirements, potential sources such as Ohio Department of Transportation projects, City civil projects, or brownfield redevelopment projects that may have the need to address excess soil generated from their projects. The soil acquisition plan will include both geotechnical specifications and chemical limits for the two different soil needs (i.e., subgrade fill and final cover protective soils) along with potential beneficial reuse options for off-specification materials.

Vegetative Layer

The landfill cap system will include a vegetative layer (topsoil) having a minimum thickness of 6 inches. The topsoil will be from an approved on-Site or off-Site source determined during the Pre-Final RD.

Fill Layer

The landfill cap system will include a fill layer having a minimum thickness of 6 inches below the vegetative layer. The sources of the fill layer will be determined during the Pre-Final RD and will be from an approved off-Site source or from the re-use of on-Site soils.

Sand Drainage Layer

The landfill cap will include a sand drainage layer having a minimum thickness of 12 inches below the fill layer. The thickness (12 inches) and hydraulic conductivity ($> 10^{-3}$ cm/sec) specifications are minimum values and may be modified during the Pre-Final RD to address waterlogging, saturation of the overlying layer, or other associated slope stability concerns. Due to the flatness of the proposed final landform grades, the sand drainage layer may need augmentation with drainage pipes. This will be evaluated during the Pre-Final RD. The sand drainage layer material will be from an approved off-Site source determined during the Pre-Final RD.

Flexible Membrane Liner

The landfill cap will include a FML below the sand drainage layer. The FML will be 40 mil-thick LLDPE, or alternatively, HDPE, PVC, or EPDM may be included as part of the Pre-Final RD.

Geosynthetic Clay Liner

The landfill cap will include a GCL below the FML. The GCL will be selected from an approved manufacturer during the Pre-Final RD.

Engineered Subbase

The landfill cap will include an engineered subbase having a minimum thickness of 6 inches below the GCL. The engineered subbase material will be screened material from Disposal Area 4 meeting specifications and potentially also material, if needed, from an approved off-Site source determined during the Pre-Final RD.

Access Road

Access roads will be established after cap construction to maintain access to different landfill units for maintenance and inspection purposes.

4.3 Stormwater Management

4.3.1 Overview

Excavation, consolidation, and capping will require stormwater management as discussed below. The stormwater runoff and water from the cap system drainage layer will be managed on Site by directing the flow into the existing borrow area in the southwest area of the Site. The borrow area will be combined with the excavated Disposal Area 4 and converted to a stormwater pond and serve as a retention and infiltration area for collected stormwater.

A preliminary final landform grading plan incorporating an “inverted sawtooth” pattern is provided in Drawing D5. The preliminary final landform incorporates interior stormwater management features (slopes and channels) to direct flow to the existing borrow area and minimize fill material needs. The preliminary final landform will also reduce construction challenges of installing perimeter stormwater ditches around portions of the Site. Additional goals of stormwater management are to minimize the need for further cover maintenance, avoid increasing the amount of runoff into the receiving surface water bodies, and meet erosion and sedimentation control requirements during construction.

4.3.2 Pre-Design Investigation

Topographic mapping collected during the PDIER was incorporated into the Preliminary RD Drawings.

4.3.3 Design Criteria and ARARs

Stormwater management will include the control of stormwater flow, erosion, and sedimentation to meet applicable portions of OAC 3745-27, 40 CFR 122.26(b)(14)(x), and the appropriate technical requirements of the City Revised Code of Ordinances Chapter 54 – Stormwater Management.

The existing borrow area is approximately 9.5 acres in size and has approximately 4 feet of allowable depth, for total capacity of approximately 21.3 acre-feet. The estimated amount of rainfall over a 24-hour period for a 100-year storm in the Dayton area is approximately 5.5 inches (point precipitation frequency estimates from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 – Dayton MCD, Ohio [33 2067] 39.7633 N 84.1911 W 784 feet, National Weather Service). This amount of rainfall over the approximately 100-acre Site would require a storage capacity of 34.4 acre feet (assuming 75% runoff), which is approximately 160% of the existing total capacity of the borrow area. The inclusion of the Disposal Area 4 excavation area as a stormwater management area connected to the existing borrow area will increase the on-Site storage capacity to sufficiently provide temporary storage for the calculated stormwater volume associated with a 100-year, 24-hour storm event at the Site.

The additional stormwater storage capacity added by the Disposal Area 4 excavation area will be analyzed during the Pre-Final RD. Factors that may influence the amount of stormwater to be managed are listed below; however, none of these factors are expected to unfavorably impact the adequacy of the borrow area and Disposal Area 4 excavation area to temporarily store stormwater from the Site:

- Vegetation density;
- Good year-round cover;
- Surface roughness;
- Coarse-grained soils (hydrologic soil groups A and B) promote infiltration and reduce peak flows and may be considered for cap system construction;
- Antecedent moisture condition;
- Prolonged period of rain;
- Frozen ground; and
- Snow melt.

4.3.4 Analysis

Hydrologic analysis for stormwater management features such as drainage benches, downchutes, detention basins, ditches, and the proposed “inverted sawtooth” stormwater swales will be completed as part of the Pre-Final RD after the landfill grading design is finalized.

4.3.5 Remedy Description

The design objectives of the landfill cap and stormwater management systems are as follows:

- a. Develop an erosion and sediment pollution control program for use during construction using BMPs and that meets the substantive Federal and State stormwater management regulations applicable to land disturbance.
- b. Prevent ponding, prevent the formation of erosional features, and facilitate appropriate surface water drainage off the capped areas.
- c. Prevent infiltration of precipitation into the landfill waste mass through the installation of an impermeable cover system per OAC 3745-27-08 and OAC 3745-27-11. The proposed landfill cap system will include a drainage layer to facilitate lateral movement of subsurface water (i.e., infiltrated stormwater) above the FML and GCL into the stormwater management system and then discharging to the proposed stormwater retention pond.

- d. Reduce or eliminate the volume and rate of surface water runoff towards existing off-Site stormwater infrastructure.
- e. Design of stormwater management system components such as: stormwater ditches, channels, culverts, and basins to handle large storm events (i.e., peak storm flows resulting from a 25-year, 24-hour storm event, which is the typical requirement for a stormwater management system [based on the requirements set forth in 40 CFR 258.26 for solid waste landfill units]).

Applicable Drawings (**Appendix A**) include:

- Drawing D5 – Final Landform Grades
- Drawing D9 – Stormwater Management System – Plan View
- Drawing D10 – Perimeter and Stormwater Details

On a preliminary basis, the stormwater management features of the Site that will be in place after completion of the construction are summarized as follows:

- The crest of each “inverted sawtooth” stormwater swale will be sloped at 2% to avoid ponding of water;
- The notch (i.e., stormwater ditch) of the “inverted sawtooth” will be sloped at 0.5% to the perimeter;
- Drainage ditches will have a minimum slope of 1% on adjacent land around the waste boundary;
- In general, drainage ditches will be grassed, and the seed mix shall be consistent with post-closure land use;
- A stormwater gravity ditch will be installed between Disposal Areas 3 and 5 to convey stormwater from those areas to the stormwater pond in the southwest portion of the Site;
- Stormwater gravity pipes along the western perimeter of Disposal Area 1 will convey stormwater from Disposal Area 1 to the stormwater pond in the southwest portion of the Site;
- The stormwater gravity pipes will be installed, via directional drilling, under the “notch area” of Disposal Area 2. Based on preliminary grades, the stormwater gravity pipe will be below the existing bottom of waste in Disposal Area 2;
- Stormwater downchutes to be constructed on Disposal Areas 2, 3, and 5 will be lined with riprap, Cable Concrete[®], or similar product to protect against erosion and will be sufficiently flexible to accommodate settlement and continue to function adequately;

- Stone riprap or other structures will be used at the termination of downchutes and along the outside of ditches with a turn of 135 degrees or less to dissipate erosive energy;
- Riprap and downchutes will be underlain by a geotextile separator to support and maintain the structures;
- A stormwater pond will be constructed in the southwest portion of the Site from the existing borrow area and the Disposal Area 4 excavation area; and
- It is anticipated that stormwater will not discharge from the proposed stormwater retention basin under the regulatory design storm.

Project specifications will be included in the Pre-Final RD and will describe the requirements for erosion and sediment control. The Pre-Final RD will also provide details for the erosion and sedimentation control features.

4.4 NAPL Recovery System

4.4.1 Overview

The goal of the NAPL recovery system is continued removal and treatment of “hot spot” principal threat waste (NAPL), primarily from two monitoring wells NSL-55L and NSL-54L, and leachate extraction wells. Monitoring wells NSL-55L and NSL-54L will be either preserved or replaced, as determined to be most practical, during cap construction. At this time, locations NSL-55L and NSL-54L will be included as part of the final RD. The locations of NSL-55L and NSL-54L and are presented in Drawing D6.

4.4.2 Pre-Design Investigation

NAPL generated during the PDI was analyzed for Resource Conservation and Recovery Act (RCRA) hazardous characteristics and polychlorinated biphenyls (PCBs) for disposal characterization (GHD, 2020). The following observations were made:

- The benzene concentration (4.4 mg/L) exceeded the Toxicity Characteristic Leaching Procedure (TCLP) regulatory level (0.5 mg/L), and therefore, the NAPL was hazardous.
- The PCB concentration (220 ppm) was greater than 50 ppm, and therefore, the NAPL was Toxic Substances Control Act (TSCA)-regulated.

4.4.3 Design Criteria & ARARs

Based on the analytical results presented in the PDIER, NAPL generated during post RA activities may require disposal as hazardous TSCA-regulated waste. The O&M Manual will update constituent analyses for NAPL, as necessary to reflect any changes in the list of RCRA hazardous characteristics or other parameters and any additional parameters specifically requested by the disposal facility after one is identified. This will facilitate determination of appropriate disposal

options for any collected NAPL and determine the most appropriate collection methods and will further evaluate options for NAPL removal during remedy implementation and O&M, which may be more efficient/effective. Any collected NAPL will be stored separately from the collected leachate.

4.4.4 Analysis

Monitoring wells NSL-55L and NSL-54L and leachate extraction wells will be used to monitor and recover NAPL on an as-needed basis. During the Pre-Final RD, the O&M Manual will be modified to include a discussion on when and how these will be sampled, criteria for removal of NAPL, and methods of removal and disposal.

4.4.5 Remedy Description

The design objectives of the NAPL recovery system are as follows:

- a. Preserve or replace monitoring wells NSL-55L and NSL-54L, as determined to be most practical, during cap construction.
- b. Monitor for the presence of NAPL in monitoring wells NSL-55L, NSL-54 or replacement wells, and leachate extraction wells on a periodic basis that will be discussed in the Pre-Final RD O&M Manual.
- c. Remove by mechanical (e.g., bailer) or passive (e.g., absorbent socks) means (depending on quantity), containerize, and sample (as necessary) accumulated NAPL on a periodic basis for off-Site transportation and disposal (T&D) at an appropriately-licensed facility.
- d. Continue monitoring/removal/off-Property disposal and develop appropriate completion criteria for NAPL removal during O&M activities.

4.5 Leachate Management System

4.5.1 Overview

Leachate extraction will occur through the installation of vertical extraction wells (which will be dual-phase LFG-leachate wells) installed within the waste mass. The goal of leachate extraction (i.e., source control) is to reduce mounding to prevent migration of Site-related contaminants to groundwater that would result in exceedances of the groundwater compliance criteria beyond the Groundwater Point of Compliance (GW POC), and to restore groundwater to its beneficial use at and beyond the GW POC within a reasonable timeframe. Preliminary locations of dual-phase extraction wells are presented in Drawing D6.

Leachate extraction wells will connect to a leachate forcemain and be pumped to a leachate above ground storage tank (AST) to be located south of Disposal Area 3. Leachate from the AST will be tested prior to T&D at an off-Site permitted public or commercial industrial wastewater treatment plant. The Pre-Final RD will include information on how the leachate extraction system will operate, along with detailed sampling and monitoring schedules, proposed off-Site treatment facilities, and details on adjusting the leachate extraction system over time based on collected data.

4.5.2 Pre-Design Investigation

The PDIER noted sporadic exceedances of Maximum Contaminant Levels (MCLs) and detections of 1,4-dioxane in leachate and groundwater. The landfill cap will reduce infiltration into the waste materials, and together with NAPL recovery and leachate extraction, will reduce concentrations of contaminants (including 1,4-dioxane) in groundwater.

4.5.3 Design Criteria & ARARs

The leachate management system will be constructed in accordance with OAC 3745-27-11. Preliminary designs are based on the thicknesses of saturated waste as shown on PDIER Figure 3.11 (GHD, 2020).

The ROD specifies leachate extraction but states that *the exact number and locations of extraction wells and the appropriate pumping rates would be determined during remedial design*. Preliminary locations of dual-phase extraction well are presented in Drawing D6. The number and location of leachate extraction wells will be optimized during the Pre-Final RD.

Leachate will be stored in an AST prior to off-Site T&D. The AST will be centrally located to the Site, as shown on Drawing D5, and will include a truck loadout facility. Additionally, the design will include secondary containment, level monitoring and alarms, and freeze protection. The leachate AST shall meet the criteria provided in OAC 3745-27.

4.5.4 Analysis

Desktop analyses for the leachate management system will be evaluated during the Pre-Final RD based on existing information. Analyses will include leachate generation rates, chemical compatibility of leachate with extraction systems, tank storage requirements, head loss analysis of the leachate conveyance system piping, and chemical analysis for leachate disposal.

4.5.5 Remedy Description

This section provides a summary of the leachate management system elements. The overall design objectives of the leachate management system are to:

- Reduce the quantity of leachate COCs migration to groundwater;

- Reduce hydrostatic pressures (i.e., outward gradient) that could accumulate under the new landfill capping system to avoid the potential for seepage to be discharged from the landfill to nearby soils and surface water; and
- Reduce hydrostatic pressures that could accumulate under the new cover system to prevent slope instability.

Applicable Drawings (**Appendix A**) include:

- Drawing D6 – Leachate & Landfill Gas Management Systems – Plan View;
- Drawing D7 – Leachate and Landfill Gas Details – 1; and
- Drawing D8 – Leachate and Landfill Gas Details – 2.

Interior Dual-Phase Leachate Extraction Wells

Interior leachate extraction will include installation of vertical extraction wells (which will be dual-phase LFG-leachate wells) across the Site interior (i.e., within the waste boundary – see Drawing D6), pumps, leachate conveyance piping (forcemain), a lift station near Valleycrest Drive, and an AST and load-out pad. Typical leachate extraction details are provided in Drawing D7. Post start-up characterization of collected liquids will be needed in order to identify a suitable disposal facility, as well as to assess whether pretreatment would be needed should a direct sanitary sewer connection be implemented at a later date.

Leachate Generation and Compatibility

The leachate extraction well piping and forcemain will be constructed from HDPE materials or other equivalent materials. Compatibility of HDPE material with leachate has been demonstrated through widespread use at solid waste landfills. Manufacturer documentation on chemical capability will be provided in the Pre-Final RD.

Disposal of Leachate

The RDWP discussed that the RD will evaluate a direct sanitary sewer discharge to the existing Brandt Pike right of way as a potential method for leachate treatment and disposal at the City's wastewater treatment facilities. However, a February 4, 2021 email from the City's Division Manager (see **Appendix C**) stated that the City will not accept leachate from any new landfill leachate sources due to concerns with unregulated emerging contaminants.

Based on the City's position, the proposed method of leachate treatment and disposal is periodic removal of leachate from the proposed AST, via tanker trucks, and T&D to an off-Site commercial treatment facility.

During the PDI, Clean Water Environmental (EPA ID No. OHD004274031), located in Dayton, accepted non-hazardous investigation-derived waste and therefore, may also be a suitable facility for leachate T&D.

4.6 LFG Management System

4.6.1 Overview

LFG collection will include installation of vertical extraction wells (which will be dual-phase LFG-leachate wells) across the Site interior and associated conveyance piping. Collected LFG will be conveyed to a central flare located south of Disposal Area 3 near the leachate AST. The goal of LFG collection is to prevent the below grade migration of LFG and any potential off-Site odors. Preliminary locations of dual-phase extraction wells are presented in Drawing D6.

4.6.2 Pre-Design Investigation

As discussed in PDIWP Section 3.3.2.1 (LFG Investigation), the average run-time of the existing LFG abatement system (LGAS) is approximately 3 hours per day at approximately 200 standard cubic feet per minute (scfm), which equates to an average continuous rate of approximately 25 scfm. When normalized to 50% methane to account for methanogenesis (i.e., process that generates LFG), the actual LFG flows are approximately 7 scfm. This indicates that the Site is on the far-right hand side of the LFG curve (i.e., decreasing) as developed for the Site during the RI/FS. The Site's LFG generation rate has already decreased significantly in recent years and will continue to gradually decrease over time.

4.6.3 Design Criteria & ARARs

The LFG management system will be constructed and operated in accordance with OAC 3745-27-11 (Final Closure of a Sanitary Landfill Facility) and OAC 3745-27-12 (Explosive Gas Migration Monitoring for a Sanitary Landfill Facility). Preliminary LFG extraction well locations are based on the thicknesses of waste, potential radius of influence, and previous locations of below grade LFG migration. SOW Section 1.3c.(2) requires that the existing perimeter LFG system be replaced in its entirety. The Pre-Final RD will evaluate the transition from the current existing perimeter to the proposed final gas collection and control system (GCCS) during RA construction. Additionally, current infrastructure (i.e., existing LFG extraction wells) may be used as part of the new system but the current system will be abandoned as required by the ROD.

4.6.4 Analysis

A number of analyses for the LFG management system will be completed during the Pre-Final RD, including a calibration of the existing LFG curve to existing LFG flows, a radius of influence analysis, pressure modeling on proposed conveyance piping, and LFG condensate generation analysis. The analyses and associated modeling will assume fully capped conditions for development of LFG collection volumes.

4.6.5 Remedy Description

This section provides a summary of the LFG management system elements. The overall design objectives of the LFG management system are to:

- For the eastern two-thirds of the Site, prevent inhalation (via ambient air) of chemicals of concern (COCs) by a future park worker, future residential user, current trespasser, and current/future off-Property and OPBWA resident at concentrations greater than the risk-based preliminary remediation goals (RBPRGs);
- For the western third of the Site, prevent inhalation (via ambient air) of COCs by a future commercial worker, future maintenance/park work, and current/future off-Property residents at concentrations greater than RBPRGs;
- Prevent accumulation of explosive concentrations of LFG within structures;
- Prevent accumulation of explosive concentrations of LFG (i.e., methane) within on-Site structures;
- Prevent migration of LFG having methane above the lower explosive limit (LEL, 5% by volume) beyond the Property boundary;
- Prevent inhalation of vapors in excess of RBPRGs in on-Site and off-Property indoor air for current and future residents, current trespassers, future utility workers, and future construction workers; and
- Prevent inhalation of radon from radioactive materials in former Disposal Area 3 in excess of RBPRGs in on-Site indoor air for future utility, commercial, and construction workers, and future park workers.

Applicable Drawings (**Appendix A**) include:

- Drawing D6 – Leachate & Landfill Gas Management Systems – Plan View
- Drawing D7 – Typical Final Cover, Leachate, & Landfill Gas Details

Interior Dual-Phase LFG Extraction Wells

Interior LFG collection will include the installation of vertical extraction wells (which will be dual-phase LFG-leachate wells) across the Site interior (i.e., within the waste boundary – see Drawing D6), LFG conveyance piping, and a central candlestick flare skid. Typical LFG collection details are provided in Drawing D7.

LFG Monitoring

Perimeter LFG monitoring probes will be installed around the perimeter of the Site. Preliminary plans for the placement of the LFG monitoring probes are shown in Drawing D6. Typical LFG monitoring probe construction details will be provided in the Pre-Final RD.

The LFG monitoring probe locations will be provided in the Pre-Final RD Drawings and Site Wide Monitoring Plan (SWMP). LFG monitoring will be conducted in accordance with OAC 3745-27-12 and include monitoring for methane, pressure, and carbon dioxide. The frequency will be provided in the SWMP which will include an Explosive Gas Management Plan.

4.7 Institutional Controls

The goals of institutional controls (ICs) and Uniform Environmental Covenants Act (UECA) environmental covenants are to secure, safeguard, and restrict access to the Property and ensure long-term care of the Property and protectiveness of the remedy. The requirements are presented in CD Section VIII (Property Requirements) and are discussed in greater detail in the Institutional Controls Implementation and Assurance Plan (ICIAP) provided in **Appendix D**.

4.8 Groundwater Point of Compliance

The design dictates that an adjustment from the ROD-proposed GW POC in the southwest area outward to coincide with the Property boundary is needed, such that the GW POC would be the Property boundary around the entire Site. This adjustment is made based on the following:

1. CERCLA typically uses the property line for compliance, similar to the LFG POC.
2. The SWPs control groundwater access to the property line; therefore, there is no risk to the public.
3. As discussed in Section 4.3, the former Disposal Area 4 location will remain as a depression in the southwest area of the Site that is needed as part of the future stormwater management system in addition to the adjacent existing borrow area already specified in the ROD. The GW POC needs to be outside the stormwater management area in the southwest area of the Site.

The adjusted GW POC is shown in Drawing D6. The groundwater monitoring locations will be provided in the Pre-Final RD Drawings and SWMP, including a detailed review of monitoring well needs in the POC adjustment area.

4.9 USEPA Principles for Greener Cleanups

Green Remediation BMP recommendations for landfill cover systems and energy production are described in the USEPA's 2011 "Green Remediation Best Management Practices:

Landfill Cover Systems & Energy Production” (USEPA, 2011). The use of green BMPs can help project managers and other stakeholders apply the principles on a routine basis while maintaining the cleanup objectives, ensuring protectiveness of a remedy, and improving its environmental outcome. The USEPA’s Green remediation BMPs for addressing landfill design, construction, and operation focus on the final cover system, LFG recovery for beneficial use, integrating landfill cover designs with beneficial reuse, and maintaining and monitoring a final cover.

There is an opportunity to optimize the sustainability and green initiatives for closure and post-closure care. **Table 4-3** summarizes potential BMPs for green remediation for landfill closures. The listed BMPs have been screened for applicability and feasibility with respect to the RD. BMPs considered feasible have been conceptually assessed for inclusion in this Preliminary RD, and will be refined during the Pre-Final RD.

SECTION 5

OTHER SITE REMEDIAL ACTIVITIES

This section is structured as follows:

Section 5.1 Overview

Section 5.2 Description of the Remedy

5.1 Overview

Other Site remedial activities will include:

- Reopening of Valleycrest Drive; and
- Fencing of property boundary.

5.2 Description of the Remedy

5.2.1 Reopening of Valleycrest Drive

Valleycrest Drive will be reopened in its original location. This should not present any significant design or constructability issues for the leachate, LFG, compressed air, and stormwater piping (i.e., pipe gallery) from Disposal Area 1 to the proposed leachate AST/LFG flare skid. A preliminary evaluation indicates that conventional horizontal boring techniques can be used to install the pipe gallery under Valleycrest Drive.

5.2.2 Fencing of Property Boundary

A new fence will be installed around the Site as shown on Drawing D6. As discussed above, Valleycrest Drive will be reopened; therefore, two separate fence systems will be installed: (1) around the perimeter of Disposal Area 1, and (2) the remainder of the Site west of Valleycrest Drive. The type of fence, height of fence, and locations will be assessed during the Pre-Final RD.

SECTION 6

PERFORMANCE STANDARDS VERIFICATION PLAN

This Performance Standards Verification Plan (PSVP) was developed to meet the requirements of SOW Section 6.7g, which requires the PSVP to describe:

- Each Performance Standard (PS) required by the ROD;
- The methods planned to ensure that each PS will be met;
- The activities to be performed to demonstrate that PSs have been met; and
- A schedule of these performance demonstration activities.

The PSs must be incorporated into the various deliverables that comprise the RD (i.e., plans, specifications, drawings, etc.). The PSs have been compiled for each major remedy component and are presented in **Table 6-1**. References to applicable section(s) of the RD report and supporting documents will be completed during the Pre-Final RD. Performance verification will in many cases involve field sampling, monitoring, and testing activities. Accordingly, **Table 6-1** of the PSVP references the following project plans that will be used during RA and post-closure operation and maintenance:

- CQA/QCP;
- O&M Manual;
- SWMP;
- Transportation and Off-Site Disposal Plan (TODP);
- Quality Assurance Project Plan (QAPP); and
- Health and Safety Plan (HASP).

SECTION 7

CONTRACTING STRATEGY AND PROJECT SCHEDULE

7.1 Contracting Strategy

A request for bid (RFB) will be prepared that will include bid documents such as the Pre-Final RD or Final RD, general conditions, measurement and payment conditions, bid form, and other administrative bid documents (e.g., CD). In addition, the RAWP shall be prepared with the Pre-Final RD for use in the RFB. The RFB will be sent to bidders that will have been prequalified through the knowledge of the SWPs or the Engineer.

Bids will be evaluated against selection criteria and one or two bidders will be interviewed prior to selection.

7.2 Project Schedule

The preliminary RA construction schedule is presented on **Figure 7-1**. The schedule presents the RA phase of the project from initiation of bidding through construction. As RDWP Figure 3-1 (Remedial Design Schedule) ends with SWP submittal of a revised Final (100%) RD Report and revised Final RAWP on April 14, 2022, the preliminary RA schedule in Figure 7-1 begins with receipt of USEPA authorization to proceed with RA assumed to be issued by the USEPA 30 days later on May 14, 2022.

SECTION 8

TRANSPORTATION AND OFF-SITE DISPOSAL PLAN

8.1 Introduction

This TODP was developed per SOW Section 6.7k. Considerations for vehicle traffic and necessity for off-Site disposal associated with the anticipated work are presented. As noted in the SOW and refined in the RDWP, the RA includes four tasks:

- Task 1: Excavation, Treatment, and Disposal of Contaminated Soils and Other Materials;
- Task 2: Consolidation and Capping of Site;
- Task 3: Actions to Address NAPL, LFG, Leachate Contamination, as well as Stormwater; and
- Task 4: Institutional Controls, Groundwater Monitoring, and Post-Construction O&M.

Task 1 is complete per the PDIER (GHD, 2020). Accordingly, this Preliminary RD TODP focuses on Tasks 2 – 4. As presented in the RDWP, each of the remaining tasks consists of work to be conducted within the facility boundaries and will not require continuous vehicle ingress and egress to levels which may pose a potential nuisance to the community. Excavating and relocating the materials from the OPBWA, and backfilling, grading, and revegetating that area will be performed from Disposal Area 1 and will not involve any off-Site transportation or disposal.

8.2 Transportation

Transportation associated with Task 2 will consist of mobilization and demobilization of earthwork equipment and delivery and removal of construction materials at the beginning and end of the Task 2 activities. The anticipated daily traffic outside of the facility boundary will be limited to the arrival and departure of construction crew work vehicles, which can be presumed equivalent to a 1-ton dual-axle pickup truck or smaller.

Long-term transportation of leachate for off-Site disposal will consist of periodic (assume weekly) arrival and departure of a licensed liquid waste removal hauler. Transfer of leachate from the on-Site AST to the tanker truck will occur on Site and within the boundaries of the load-out pad and its associated secondary containment.

Transportation associated with the remaining items in Tasks 3 and 4 will consist of periodic (assume monthly) arrival and departure of monitoring crew work vehicles, which can be presumed equivalent to a 1-ton dual-axle pickup truck or smaller. NAPL and purge/decontamination water associated with monitoring events will be stored in 55-gallon drums or poly tanks and staged on

Site, and will be picked up by a licensed waste removal hauler. Additional details regarding NAPL and purge/decontamination water storage and disposal SOPs will be provided in the Pre-Final RD O&M Manual.

8.3 Off-Site Disposal

Earthwork activities associated with waste consolidation will not require off-Site disposal of any in-place landfill waste materials, as any relocated waste will be placed into other existing disposal areas on Site for subsequent capping of the landfill.

Construction work associated with capping the landfill will generate inert construction materials waste requiring disposal, which will be managed by staging roll-off dumpsters on Site to be removed for off-Site disposal at a separate licensed landfill facility.

Off-Site disposal of leachate, NAPL, and purged groundwater will be managed via SOPs outlined in the Pre-Final RD O&M Manual.

Per SOW Section 4.6 (Off-Site Shipments):

- a. *Settling Work Parties may ship hazardous substances, pollutants and contaminants from the Site to an off-Site facility only if they comply with Section 121(d) (3) of CERCLA, 42 U.S.C. § 9621(d) (3), and 40 C.F.R. § 300.440. Settling Work Parties will be deemed to be in compliance with CERCLA Section 121(d) (3) and 40 C.F.R. § 300.440 regarding a shipment if Settling Work Parties obtain a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). Settling Work Parties may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if Settling Work Parties comply with EPA's Guide to Management of Investigation Derived Waste, OSWER 9345.3-03FS (Jan. 1992).*
- b. *Settling Work Parties may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed ten cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Work Parties also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Work Parties shall provide the notice after the award of the contract for Remedial Action construction and before the Waste Material is shipped.*

SECTION 9

RA MONITORING AND CONTROL MEASURES

RA monitoring and control measures will be determined as part of the Pre-Final RD and RAWP.

SECTION 10

LONG-TERM OPERATION AND MAINTENANCE

A preliminary O&M Manual has been developed and is provided in **Appendix E**. The O&M Manual will be updated as part of the Pre-Final RD.

SECTION 11

PERIODIC REVIEW SUPPORT PLAN

As stated in ROD Section 13.6 (Five Year Review Requirements), *Because this remedy will result in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the selected remedy is, or will be, protective of human health and the environment.*

Five-year reviews (FYRs) are repeated every succeeding 5 years so long as future uses remain restricted. FYRs for the Site will be conducted by USEPA Region 5.

As stated in CD Paragraph 15 (Periodic Review), *Settling Work Parties shall conduct, in accordance with the SOW, studies and investigations to support EPA's reviews under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and applicable regulations, of whether the RA is protective of human health and the environment.*

As stated in SOW Section 6.7h (Periodic Review Support Plan), *The Periodic Review Support Plan addresses the studies and investigations that Settling Work Parties shall conduct to support EPA's reviews of whether the Remedial Action is protective of human health and the environment in accordance with Section 121(c) of CERCLA, 42 U.S.C. § 9621(c). Settling Work Parties shall develop the plan in accordance with Comprehensive Five-year Review Guidance, OSWER 9355.7-03B-P (June 2001), and any other relevant five-year review guidance.*

As stated in the USEPA's June 2001 "Comprehensive Five-Year Review Guidance":

- *The lead agency conducts the five-year review, prepares the Five-Year Review report, and submits the report to the support agency for review and comment. The lead agency is also responsible for conducting community involvement activities and for ensuring that recommendations and follow-up actions identified during five-year reviews are completed.*
- *PRPs or PRP-hired contractors may perform certain support activities (e.g., data collection, studies or analysis) according to provisions of an enforceable agreement.*

While the USEPA's June 2001 guidance does not discuss preparation of a Periodic Review Support Plan (PRSP), the SWPs will support USEPA completion of FYRs, which may include the following SWP tasks:

- Data collection, studies, or analysis, as requested by the USEPA.

- Providing information related to the ICIAP and associated ICs, recorded copies of restrictive covenants or easements from the appropriate land records office, title commitments or current ownership/encumbrances reports.
- Providing O&M cost information.
- Participating in interviews, if requested.
- Providing comments on the FYRs.

Per SOW Section 7.3 (RA Schedule) Item 15, the SWPs shall provide periodic review support within 6 months after the request from the USEPA.

SECTION 12

SITE WIDE MONITORING PLAN

A preliminary SWMP has been developed and is provided in **Appendix F**. The SWMP will be updated as part of the Pre-Final RD.

SECTION 13

SUPPORTING DELIVERABLES

SOW Section 6.7 (Supporting Deliverables) discusses the 11 supporting deliverables to be submitted during the RD and updated as necessary or appropriate during the course of the work.

The RDWP included the Emergency Response Plan (ERP) and HASP. As discussed in the RDWP, given the extensive nature of the PDI, at this time no data collection is proposed in support of the RD. Accordingly, there is no current need for a field sampling plan (FSP) or QAPP, and they are therefore not provided at this time. When the need for data collection becomes defined, the comprehensive FSP and QAPP included within the PDIWP will be used, or adopted as the starting point for development of addenda or a new FSP and QAPP. The FSP and QAPP will be provided with the Pre-Final RD in support of the SWMP.

The following deliverables are included in this Preliminary RD:

- CQA/QCP;
- ICIAP;
- O&M Manual;
- PSVP;
- PRSP;
- SWMP; and
- TODP.

Table 1-1 provides the location where each of these plans can be found in this Preliminary RD.

It is anticipated that the following calculation packages will be submitted as part of the Pre-Final RD:

- Geotechnical Analysis
- Leachate Management System Analysis
- LFG Management System Analysis
- Stormwater Management System Calculations

Additional calculations may be performed, as necessary, to verify the proposed RD elements.

SECTION 14

REFERENCES

- Conestoga-Rovers & Associates, March 21, 2011 with revised pages April 19, 2011. Feasibility Study Report for the North Sanitary Landfill, Dayton, Ohio.
- Conestoga-Rovers & Associates, May 2, 2008. Remedial Investigation Report for the North Sanitary Landfill, Dayton, Ohio.
- Geosyntec, February 2021. Remedial Design Work Plan. North Sanitary Landfill, Dayton, Ohio.
- GHD, May 20, 2019. Pre-Design Investigation Work Plan, North Sanitary Landfill, Dayton, Ohio.
- GHD, September 22, 2020. Pre-Design Investigation Evaluation Report, North Sanitary Landfill, Dayton, Ohio.
- National Oceanic and Atmospheric Administration (NOAA) Atlas 14 – Dayton MCD, Ohio [33 2067] 39.7633 N 84.1911 W 784 feet, National Weather Service.
- Ohio Environmental Protection Agency, September 14, 2004. Geotechnical and Stability Analyses for Ohio Waste Containment Facilities.
- United States Environmental Protection Agency (USEPA). 2011. Green Remediation Best Management Practices: Landfill Cover Systems & Energy Production. December 2011.
- USEPA Region 5, July 30, 2012. Addendum to the Feasibility Study Report for the North Sanitary Landfill, a/k/a Valleycrest, Superfund Site, in North Dayton, Ohio EPA ID# OHD980611875.
- USEPA Region 5, August 16, 2013. Record of Decision, North Sanitary Landfill (Valleycrest) Site, Montgomery County, Dayton, Ohio.
- United States of America, United States District Court Southern District of Ohio Western Division, February 27, 2018. Civil Action No. 3:18-cv00054.

TABLES

Table 1-1
Preliminary RD Organization Key for SOW Items

SOW Items	Location in 30 Percent Design Report
Preliminary Drawings and Specifications	Appendix A, Tables 4-1 and 4-2
Settling Work Parties RA Contracting Strategy	RD Report Section 7.1
Description of Permit Requirements	RD Report Section 3.1
Preliminary O&M Manual	Appendix E
EPA Principles for Greener Cleanups	RD Report Section 4.9
Preliminary RA Schedule	Figure 7-1
RA Monitoring and Control Measures	RD Report Section 9
<i>Deliverables in Preliminary Remedial Design Schedule</i>	
CQA/QCP	Appendix B
ICIAP	Appendix D
O&M Manual	Appendix E
PSVP	RD Report Section 6
PRSP	RD Report Section 11
SWMP	Appendix F
TODP	RD Report Section 8

Table 4-1
Preliminary RD Drawing List

<i>Drawing No.</i>	<i>Drawing Name</i>
D1	Title Sheet
D2	Existing Site Conditions
D3	Bottom of Waste Elevations
D4	Top of Proposed Final Waste Elevations & Waste Excavation Grades
D5	Final Landform Grades
D6	Leachate & Landfill Gas Management Systems – Plan View
D7	Typical Leachate and Landfill Details - 1
D8	Typical Leachate and Landfill Details - 2
D9	Stormwater Management System – Plan View
D10	Perimeter and Stormwater Details
D12	Engineering Cross-Section(s) North to South
D12	Engineering Cross-Section(s) West to East

Table 4-2
Preliminary RD List of Specifications

<i>No.</i>	<i>Specifications</i>
<i>Division 0: Bid Documents</i>	
Section 00100	Invitation to Bid
Section 00200	Instructions to Bidders
Section 00300	Available Information
Section 00400	Bid Form
Section 00500	Agreement
Section 00600	Bonding
Section 00720	General Conditions
Section 00730	Supplementary Conditions
Section 00800	Measurement and Payment
<i>Division 1: General Requirements</i>	
Section 01001	Abbreviations
Section 01010	Summary of Work
Section 01030	Construction Management Plan and Construction Operations Plan
Section 01031	Community Relations
Section 01032	Environmental Protection
Section 01060	Regulatory Compliance
Section 01065	Safety, Health, and Emergency Response Requirements
Section 01066	Air Monitoring
Section 01300	Submittals
Section 01310	Progress Schedules and Project Meetings
Section 01400	Construction Quality Control and Quality Assurance
Section 01500	Construction Facilities and Temporary Controls
Section 01700	Project Record Documents and Closeout

Table 4-2
Preliminary RD List of Specifications

<i>No.</i>	<i>Specifications</i>
<i>Division 2: Site Work</i>	
Section 02100	Surveying
Section 02105	Erosion and Sediment Control
Section 02110	Clearing, Grubbing, and Stripping
Section 02200	Earthwork
Section 02215	Trenching and Backfilling
Section 02220	Access Roads
Section 02710	Geotextiles
Section 02750	Geosynthetic Drainage Layer
Section 02770	Geomembrane
Section 02780	Piping
Section 02790	Pumps
Section 02910	Subsoil Grading Layer
Section 02920	Gravel Drainage Layer
Section 02930	Protective Soil Layer
Section 02940	Vegetative Soil Layer
Section 02950	Revegetation

**Table 4-3
Green Remediation BMPs for Landfill Closures**

Green BMP Focus Areas	Specific BMP items	Applicable		Recommended	
		(Y or N)	Basis	(Y or N)	Design Details
Designing and Installing a Cover System	Conventional cover than mimic natural setting	Y		Y	
	Cover accounting effects of climate change (changes in onsite soil development or vulnerability to flooding)	Y		Y	Stormwater retention volume exceeds 100-year, 24-hr storm event
	Use of uncontaminated soil or sediment, sand, gravel, and rocks from onsite excavation	Y		Y	Final landform design minimizes the need for off-site fill
	Install of earthen berms to manage stormwater	Y		Y	Infiltration Pond
	Use of geotextile fabric or drainage tubing of 100% recycled materials for erosion control and drainage	Y		Y	
	Use of materials with biobased content for daily activities	N		N	
	Use of clean fuel and emission control for routine vehicles and machinery	Y		Maybe	To be evaluated during RA contractor selection
	Onsite solar and wind resources to power equipment such as leachate pumps and flare units	Y	Proposed use of air pumps	Maybe	Potential based on pumping requirements
	<i>When design involves covers of asphalt or concrete</i>				
	Use of asphalt rubber containing recycled tires	N			
	Substitute concrete with high albedo pavement	N			
	Use concrete containing high percentage of industrial water by-products as substitute for cement	N			
	Use concrete washouts to assure proper disposal of mix water	N			

**Table 4-3
Green Remediation BMPs for Landfill Closures**

Table 4-3 Green Remediation BMPs for Landfill Closures					
Green BMP Focus Areas	Specific BMP items	Applicable		Recommended	
	When design involves evapotranspiration (ET) cover system				
	Choose recycled concrete for bio-barriers or capillary breaks	N			
	Use native drought-resistant plants for upper vegetative layer	N			
	Install a suitable mix of native shrubs, grasses, and forbs	N			
	Use non-synthetic amendments for soil or vegetation supplementation	N			
Landfill Gas (LFG) Recovery for Beneficial Use	Power other landfill operations	N			
	Provide energy for long term cleanup operations	N			
	Supplement local utility grid	N			
	Generate combined heat and power through produced waste heat	N			
	LFG processed on site to remove oxygen, CO2, nitrogen, and other trace gases to produce fuels	N			
	Screen potential for landfill methane recovery	N			
	Design and implement Methane recovery projects with potentially responsible parties (PRPs)	N			
	Procuring technical assistance from experts experienced in LFG energy systems to evaluate feasibility at sites	N			

**Table 4-3
Green Remediation BMPs for Landfill Closures**

Green BMP Focus Areas	Specific BMP items	Applicable		Recommended	
	Engaging utilities or developers for sites with potential to generate “excess” electricity - beyond onsite needs	N			
	Soliciting partners to demonstrate technologies that are emerging for electricity generation from LFG	N			
	Using energy savings performance contracts to finance and obtain technical assistance for LFG projects undertaken by federal agencies	N			
Integrating Landfill Cover Designs with Reuse	Consider a contact cover to serve as a bio-barrier	N			
	Use of a solar geomembrane cover, which can meet Subtitle D alternative cap requirements, or other solar (photovoltaics) and wind resources while converting solar/wind energy to useable power	N	Does not meet ARAR requirements	N	
	Compatible uses of land with properly covered landfills, such as greenspace for wildlife preservation or recreation, agriculture such as hay production, and seed harvesting to revegetate other sites.	Y		Y	Passive end use
Maintaining and Monitoring a Final Cover	Minimize frequency of grass mowing to reduce fuel consumption and disruption to ground-nesting birds	Y		Y	Discussed in O&M Plan
	Use of controlled grazing by goats or sheep to eliminate woody growth and control vegetation height while adding organic matter to the soil	N		N	

Table 4-3
Green Remediation BMPs for Landfill Closures

Green BMP Focus Areas	Specific BMP items	Applicable		Recommended	
	Capture rainfall as a source of water for work such as rinsing field equipment	N		N	
	Schedule periodic inspection of cover system components and quickly complete needed repair	N		N	
	Use remotely controlled or non-invasive techniques, to avoid cover damage and minimize field visits	N		N	
	Use onsite renewable energy to power auxiliary equipment such as weather stations	N		N	
	Explore partnerships to integrate cover maintenance with site reuse	Y		Maybe	
	Use of natural settings as indicators of long-term changes in the cover	Y		Y	

Table 6-1
Summary of Performance Standards and Project Plans
Performance Standards Verification Plan
North Sanitary Landfill, Dayton, Ohio

Remedy Component	Performance Standard	Reference Plan for Performance Standards in the Remedial Design (RD) Report								
		RD Report Section	Drawings (Appendix A)	Calculations (Appendix #)	Specifications (Appendix #)	CQA/QCP (Appendix B)	HASP (Appendix #)	O&M Manual (Appendix D)	QAPP (Appendix #)	SWMP (Appendix G)
Cap: Features & Performance	Slope Inclination (5%)	3.2.3 3.2.4 3.2.5	Drawing D4 Drawing D5 Drawing D7 Drawing D10 Drawing D11	NA, slopes less than 5%	Add Section	Add section				
	6" Vegetated Layer OAC 3745-27-08	3.2.3 3.2.4 3.2.5			Add Section	Add section				
	6" Common Fill Natural Soil with stones/objects < 5" in major dimensions	3.2.3 3.2.4 3.2.5			Add Section	Add section				
	12" Sand Drainage Layer Hyd. Conductivity = 1×10^{-3} cm/s	3.2.3 3.2.4 3.2.5			Add Section	Add section				
	Flexible Membrane Liner OAC 3745-27-08	3.2.3 3.2.4 3.2.5			Add Section	Add section				
	Geosynthetic Clay Liner OAC 3745-27-08	3.2.3 3.2.4			Add Section	Add section				
	6" Engineered Subbase OAC 3745-27-08 Stones/objects < 1 inch	3.2.3 3.2.4 3.2.5			Add Section	Add section				
Access Road	ODOT Construction & Materials Specifications	3.2.3 3.2.4 3.2.5			Add Section					
Disposal Area 4 Waste Management: Excavation and Onsite Consolidation	All waste and top 6" of subbase		Drawing D3		Add Section	Add section				
NAPL Monitoring and Removal	TCLP for benzene	4.13							Add section	
	TSCA for PCBs	4.13							Add section	
	ODOT - Hazardous Waste Hauling	4.13								
	Hazardous Waste Disposal	4.13								
Active Dual Extraction Collection System: Leachate, LFG, Condensate	OAC 3745-27-11	3.5.3	Drawing D6 Drawing D7							
	Offsite Leachate Disposal - Analysis & Permits for Industrial WWTP	3.5.5						Add Section		
	Leachate Extraction Wells and AST			Add Appendix						

References to applicable section(s) of the RD report and supporting documents will be completed during the Pre-Final RD.

April 2021

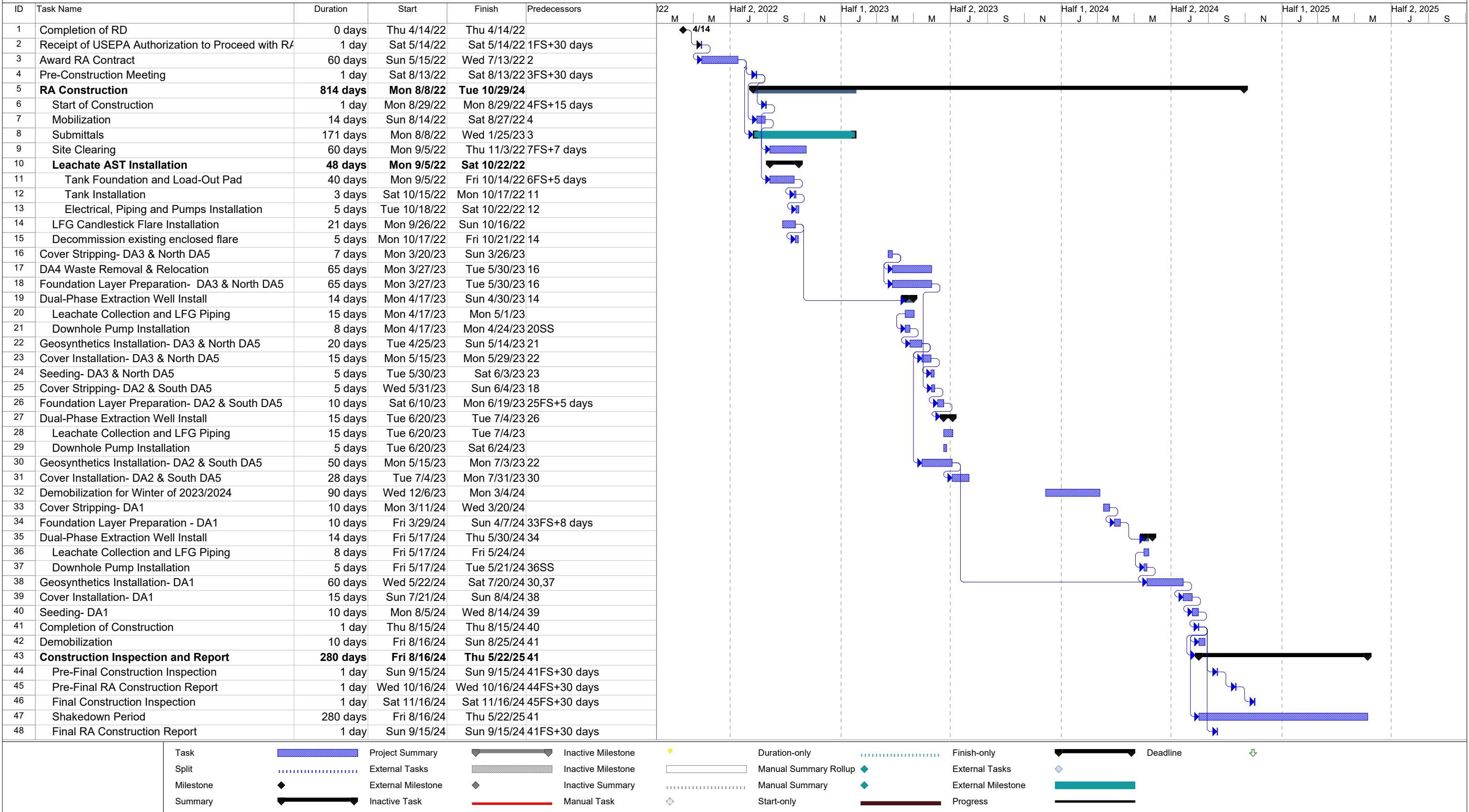
Table 6-1
Summary of Performance Standards and Project Plans
Performance Standards Verification Plan
North Sanitary Landfill, Dayton, Ohio

Remedy Component	Performance Standard	Reference Plan for Performance Standards in the Remedial Design (RD) Report								
		RD Report Section	Drawings (Appendix A)	Calculations (Appendix #)	Specifications (Appendix #)	CQA/QCP (Appendix B)	HASP (Appendix #)	O&M Manual (Appendix D)	QAPP (Appendix #)	SWMP (Appendix G)
	LFG Flaring OAC 3745-21-11 OAC3745-27-11	3.6.3	Drawing D6 Drawing D7					Add Section		
	LFG Risk-Based Preliminary Remediation Goals							Add Section		
Surface Water Management/Erosion Control: Interim and Final Measures	40 CFR 258.26 25-year, 24-hour storm event	3.3.3 3.3.4	Drawing D5 Drawing D8 Drawing D9 Drawing D10 Drawing D11							
	Inverted Sawtooth Swale 2%	3.3.5			Add Section					
	Drainage Ditches on Landfill Final Cap Minimum 2% Slope	3.3.5			Add Section					
	Drainage Ditches Surrounding Landfill Minimum 1% Slope	3.3.5			Add Section					
	Drainage Ditches Vegetation Mix	3.3.5			Add Section					
	Stormwater Gravity Pipes				Add Section					
	Stormwater Downchutes				Add Section					
	Stormwater Downchutes Rip Rap/Energy Dissipation Structure				Add Section					
Long-Term Maintenance and Post-Closure Care								Add Section		
Attainment of Groundwater Quality Standards	MCL								Add section	Section 2
	MNA								Add section	Section 2
Soil Gas Point of Compliance Monitoring	5% LEL Methane									Section 3
Well NSL-38D Abandonment	Ohio EPA Technical Guidance Manual							Add Section		
Soil Gas Probe Abandonment								Add Section		

FIGURES

FIGURE 7-1
PRELIMINARY RA SCHEDULE
North Sanitary Landfill (Valleycrest) Site
Dayton, Ohio

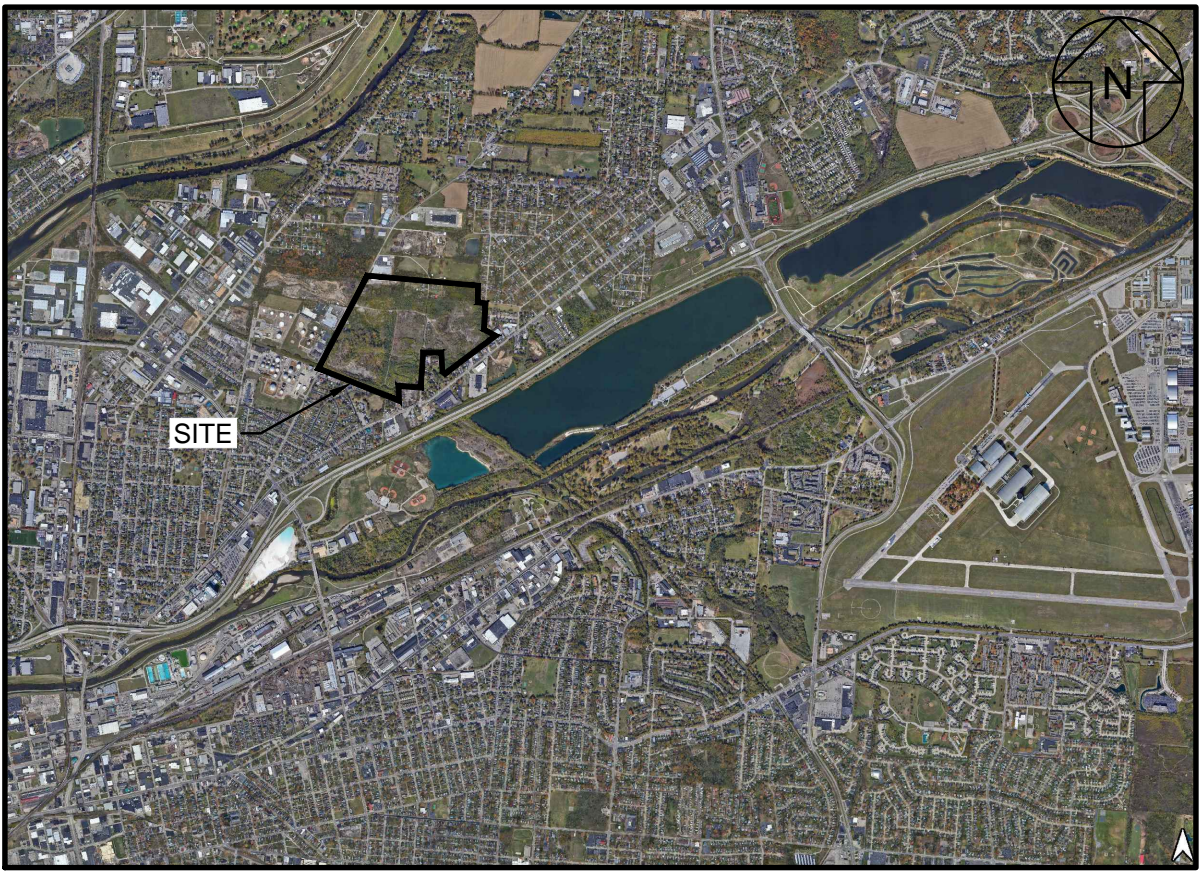
Geosyntec Consultants
Columbus, Ohio



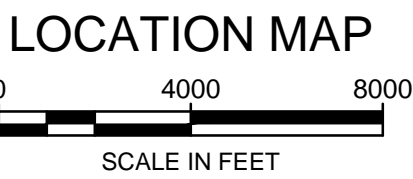
APPENDIX A

PRELIMINARY RD DRAWINGS

NORTH SANITARY LANDFILL
VALLEYCREST LANDFILL
DAYTON, OHIO
PROJECT NO. TR0881
APRIL 2021



SOURCE: GOOGLE EARTH



SHEET LIST TABLE	
D1	TITLE SHEET
D2	EXISTING SITE CONDITIONS
D3	BOTTOM OF WASTE ELEVATIONS
D4	TOP OF PROPOSED FINAL WASTE ELEVATIONS AND WASTE EXCAVATION GRADES
D5	FINAL LANDFORM GRADES
D6	LEACHATE AND LANDFILL MANAGEMENT SYSTEMS - PLAN VIEW
D7	TYPICAL LEACHATE AND LANDFILL GAS DETAILS
D8	TYPICAL LEACHATE AND LANDFILL GAS DETAILS
D9	STORMWATER MANAGEMENT SYSTEM - PLAN VIEW
D10	PERIMETER AND STORMWATER DETAILS
D11	ENGINEERING CROSS SECTIONS NORTH TO SOUTH
D12	ENGINEERING CROSS SECTIONS WEST TO EAST

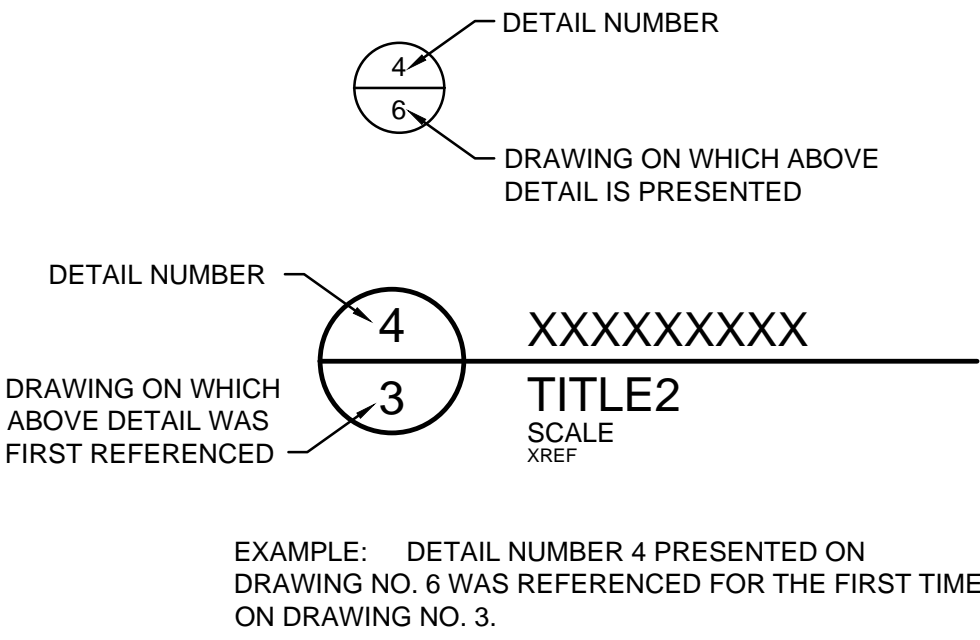
PREPARED BY:



1420 KENSINGTON RD, SUITE 103
OAK BROOK, ILLINOIS 60523 USA
TELEPHONE: 312.658.0500

FOR REVIEW PURPOSES ONLY

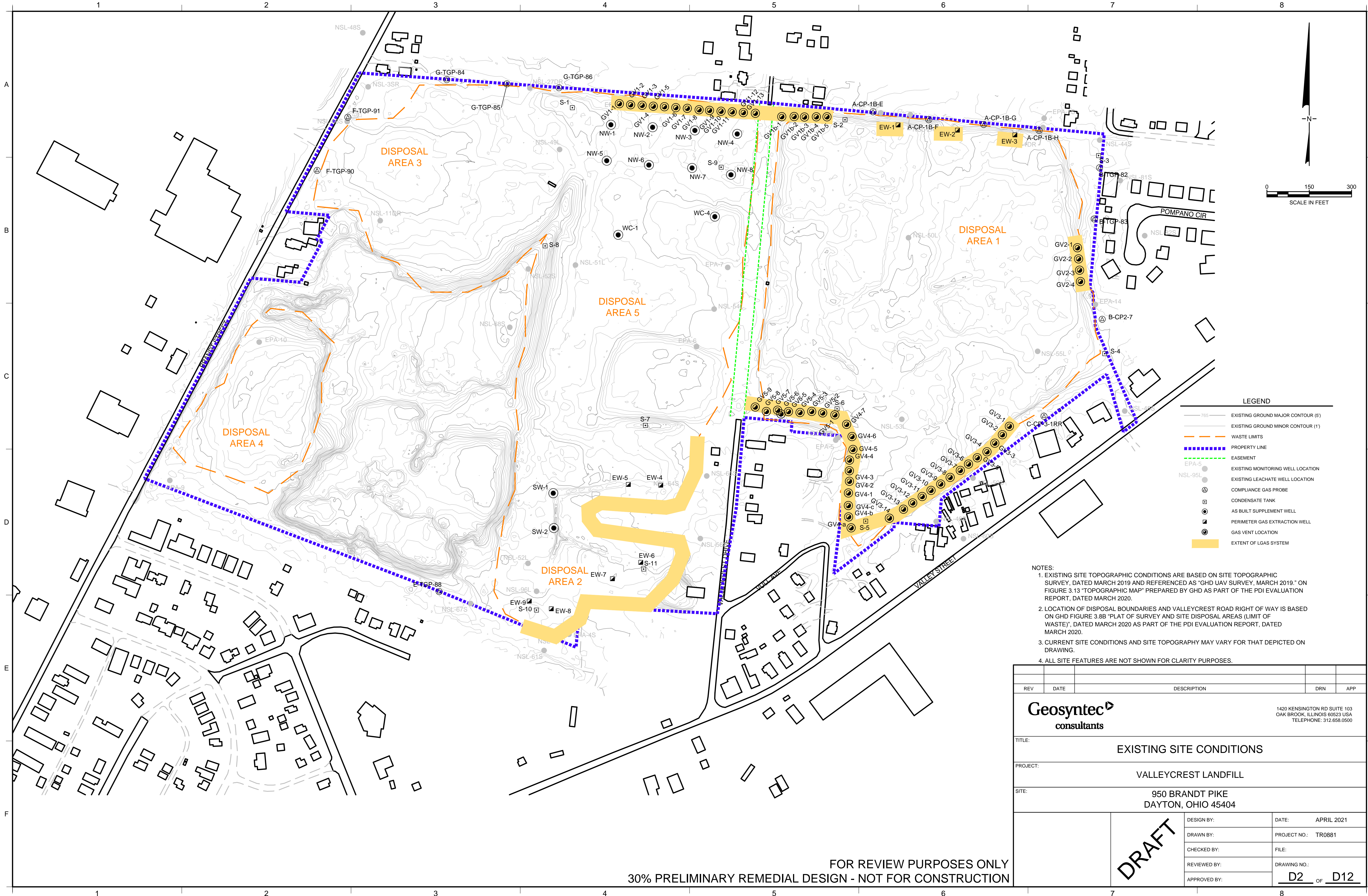
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DETAIL IDENTIFICATION LEGEND

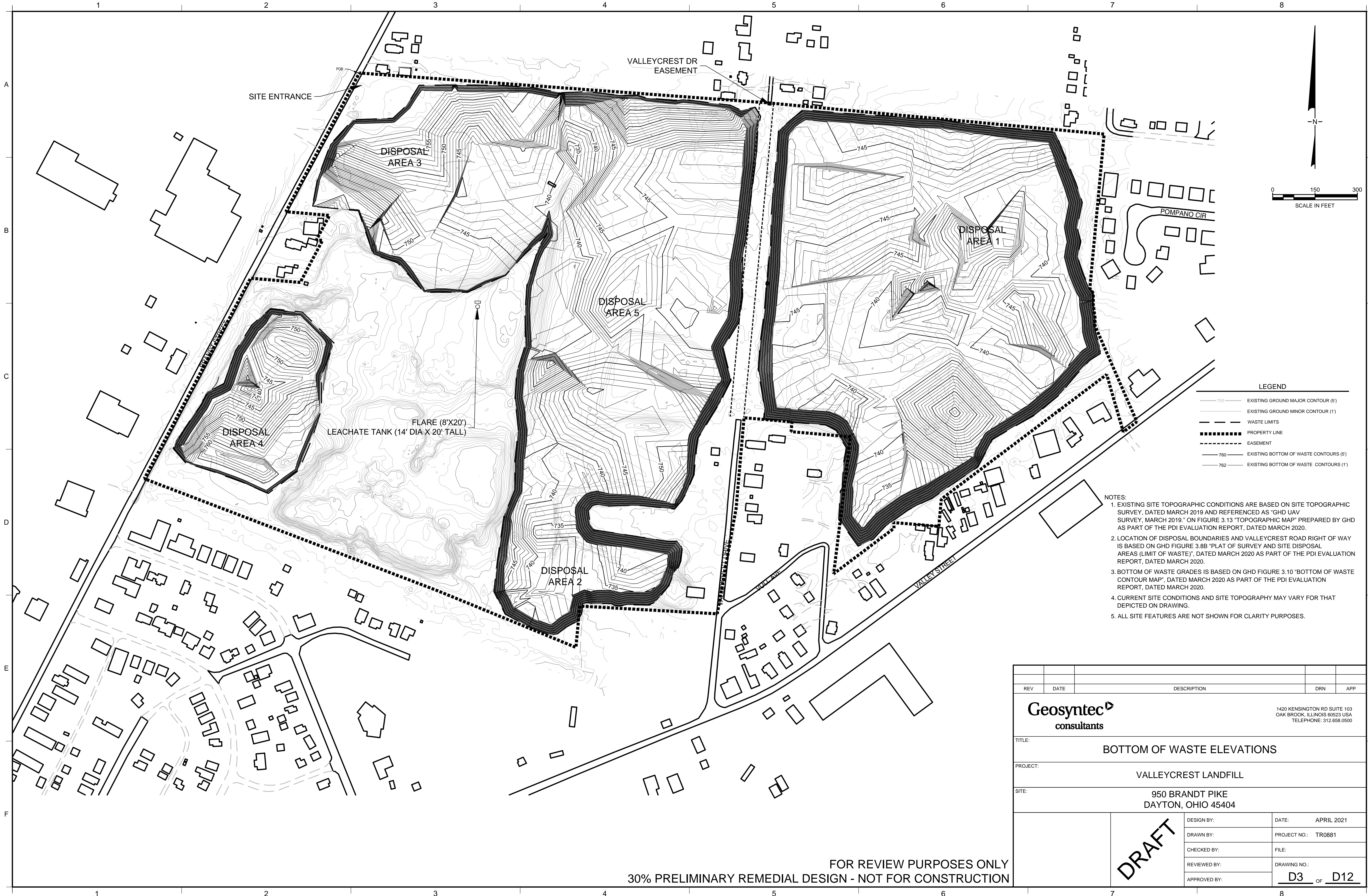
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Geosyntec consultants		1420 KENSINGTON RD SUITE 103 OAK BROOK, ILLINOIS 60523 USA TELEPHONE: 312.658.0500		
TITLE:		TITLE SHEET		
PROJECT:		VALLEYCREST LANDFILL		
SITE:		950 BRANDT PIKE DAYTON, OHIO 45404		
DRAFT		DESIGN BY:	DATE: APRIL 2021	
		DRAWN BY:	PROJECT NO.: TR0881	
		CHECKED BY:	FILE:	
		REVIEWED BY:	DRAWING NO.:	
		APPROVED BY:	D1 OF D12	

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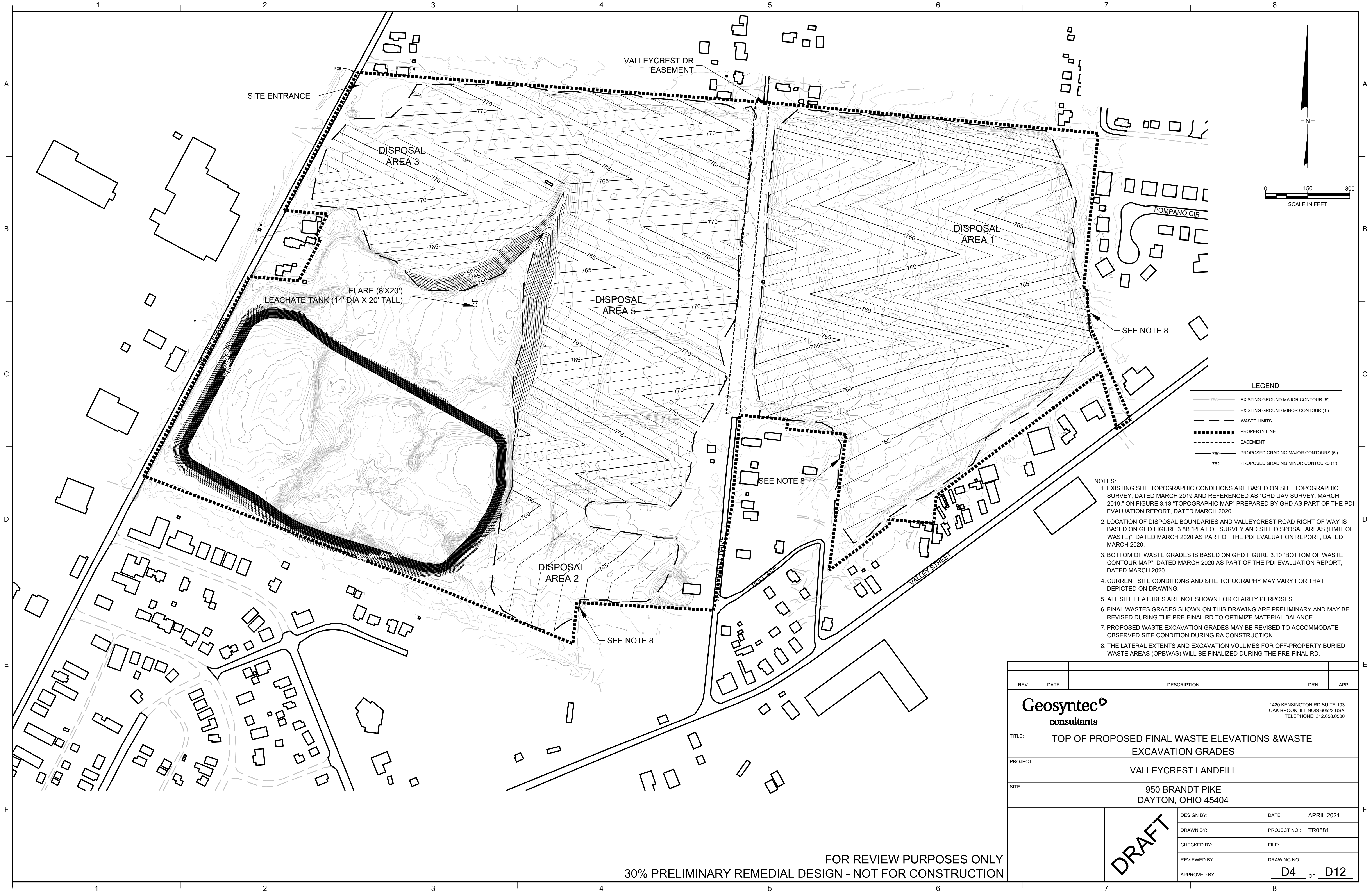


FOR REVIEW PURPOSES ONLY
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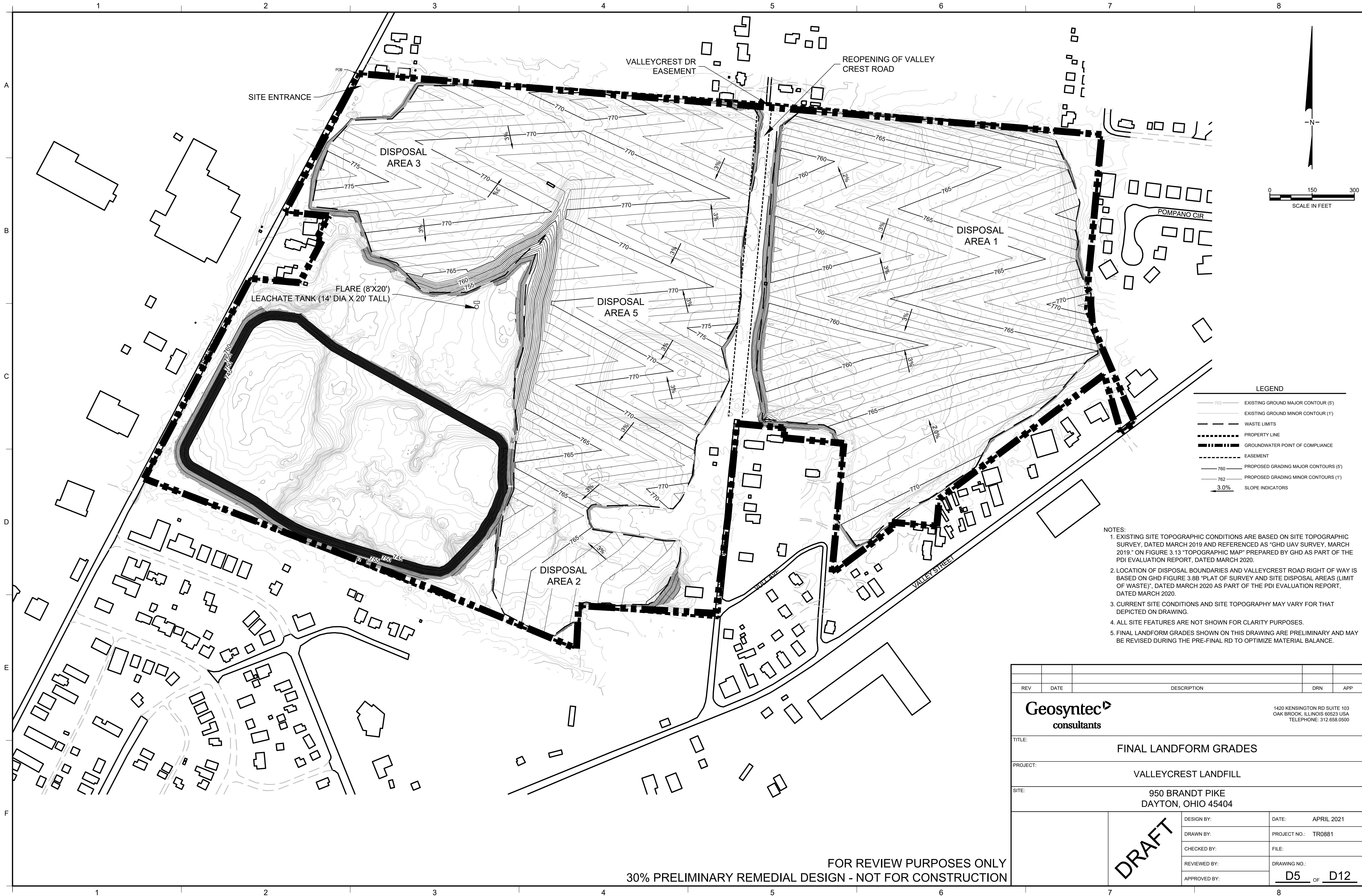
DRAFT

REV		DATE	DESCRIPTION	DRN	APP
Geosyntec [®]		1420 KENSINGTON RD SUITE 103 OAK BROOK, ILLINOIS 60523 USA TELEPHONE: 312.658.0500			
TITLE:		BOTTOM OF WASTE ELEVATIONS			
PROJECT:		VALLEYCREST LANDFILL			
SITE:		950 BRANDT PIKE DAYTON, OHIO 45404			
DESIGN BY:		DATE:		APRIL 2021	
		DRAWN BY:		PROJECT NO.: TR0881	
		CHECKED BY:		FILE:	
		REVIEWED BY:		DRAWING NO.:	
		APPROVED BY:		D3 OF D12	

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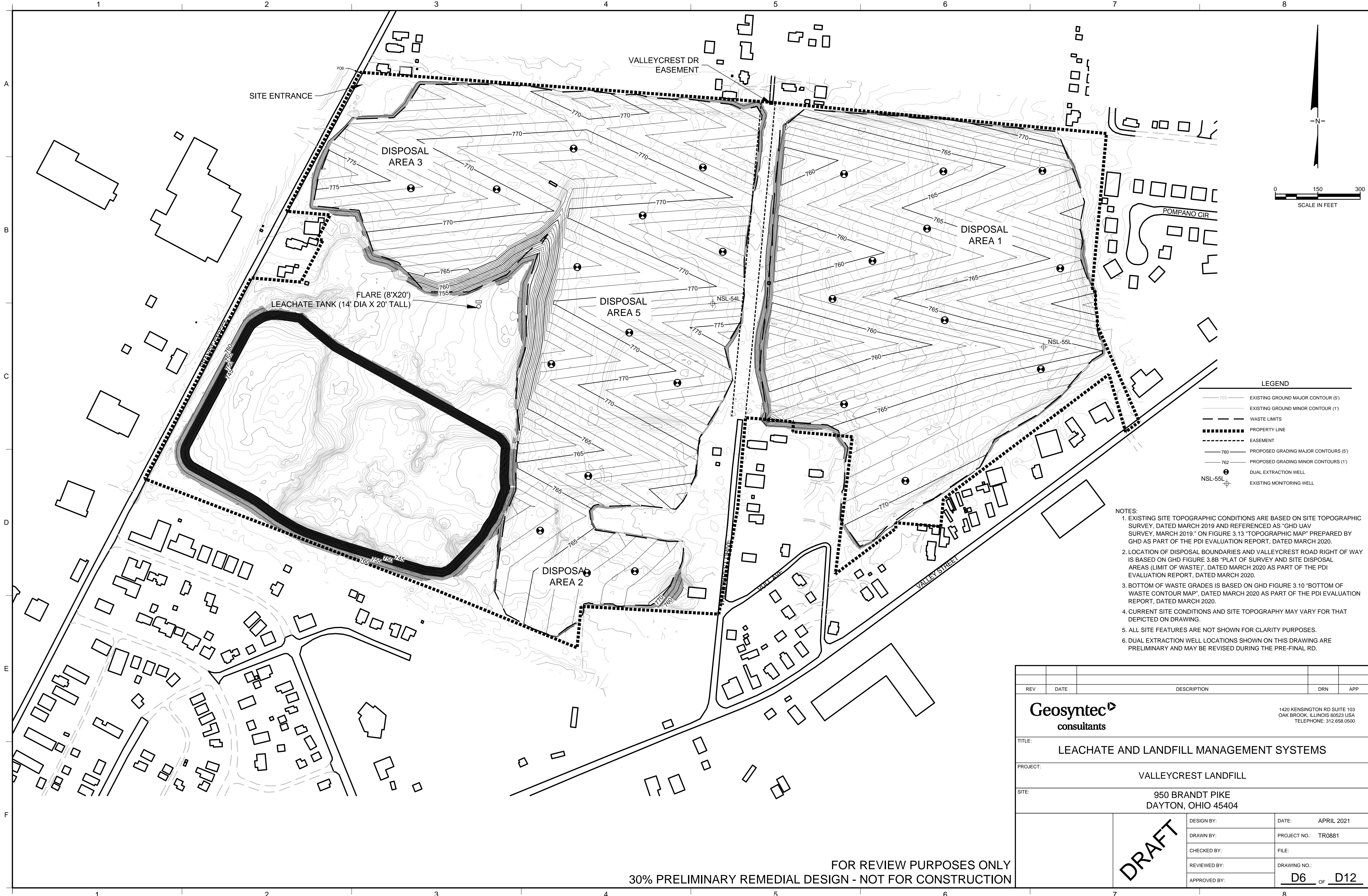
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- NOTES:
1. EXISTING SITE TOPOGRAPHIC CONDITIONS ARE BASED ON SITE TOPOGRAPHIC SURVEY, DATED MARCH 2019 AND REFERENCED AS "GHD UAV SURVEY, MARCH 2019," ON FIGURE 3.13 "TOPOGRAPHIC MAP" PREPARED BY GHD AS PART OF THE PDI EVALUATION REPORT, DATED MARCH 2020.
 2. LOCATION OF DISPOSAL BOUNDARIES AND VALLEYCREST ROAD RIGHT OF WAY IS BASED ON GHD FIGURE 3.8B "PLAT OF SURVEY AND SITE DISPOSAL AREAS (LIMIT OF WASTE)", DATED MARCH 2020 AS PART OF THE PDI EVALUATION REPORT, DATED MARCH 2020.
 3. CURRENT SITE CONDITIONS AND SITE TOPOGRAPHY MAY VARY FOR THAT DEPICTED ON DRAWING.
 4. ALL SITE FEATURES ARE NOT SHOWN FOR CLARITY PURPOSES.
 5. FINAL LANDFORM GRADES SHOWN ON THIS DRAWING ARE PRELIMINARY AND MAY BE REVISED DURING THE PRE-FINAL RD TO OPTIMIZE MATERIAL BALANCE.

REV	DATE	DESCRIPTION	DRN	APP
Geosyntec consultants		1420 KENSINGTON RD SUITE 103 OAK BROOK, ILLINOIS 60523 USA TELEPHONE: 312.658.0500		
TITLE:		FINAL LANDFORM GRADES		
PROJECT:		VALLEYCREST LANDFILL		
SITE:		950 BRANDT PIKE DAYTON, OHIO 45404		
DRAFT		DESIGN BY:	DATE: APRIL 2021	
		DRAWN BY:	PROJECT NO.: TR0881	
		CHECKED BY:	FILE:	
		REVIEWED BY:	DRAWING NO.:	
		APPROVED BY:	D5 OF D12	

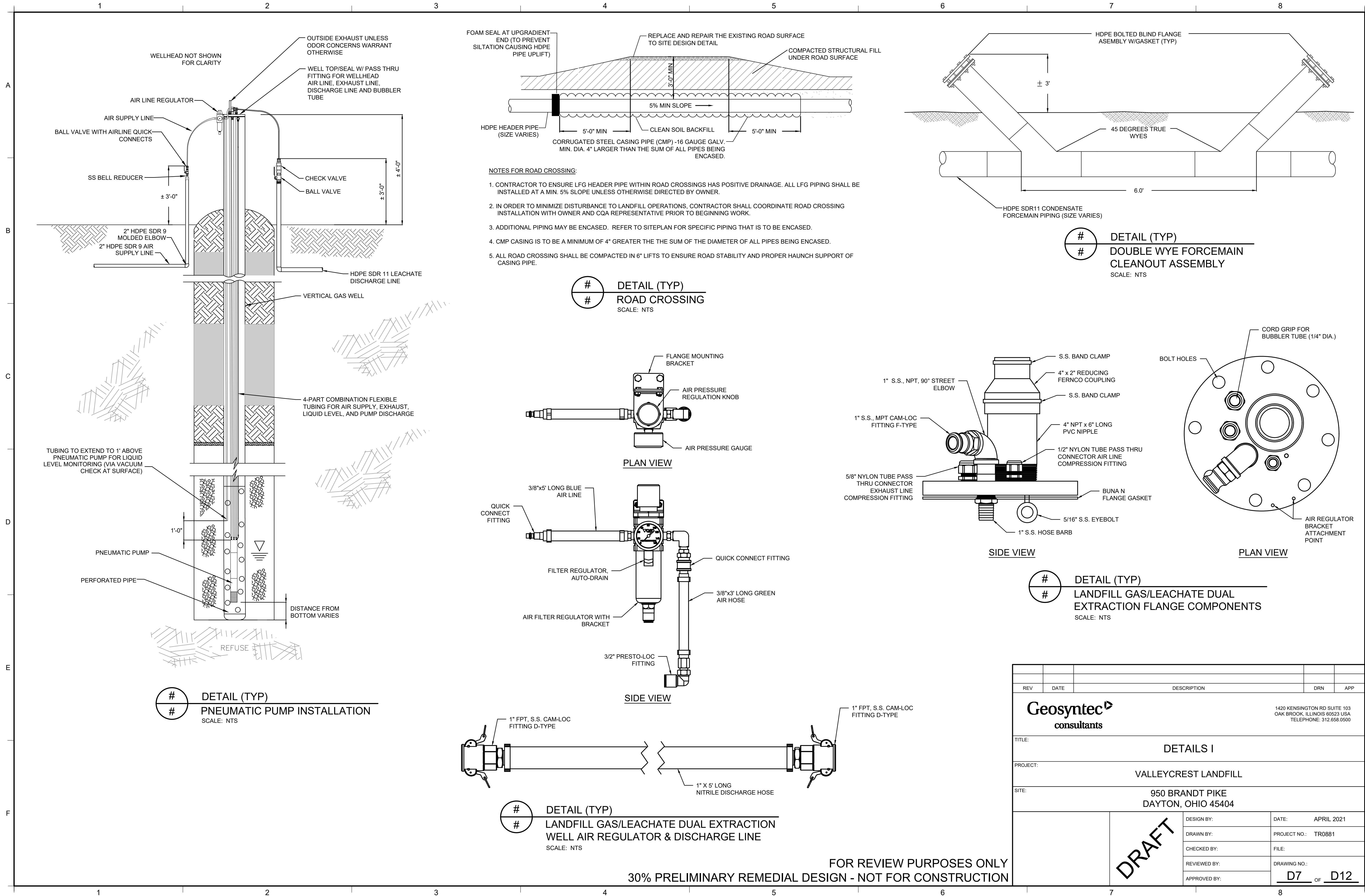
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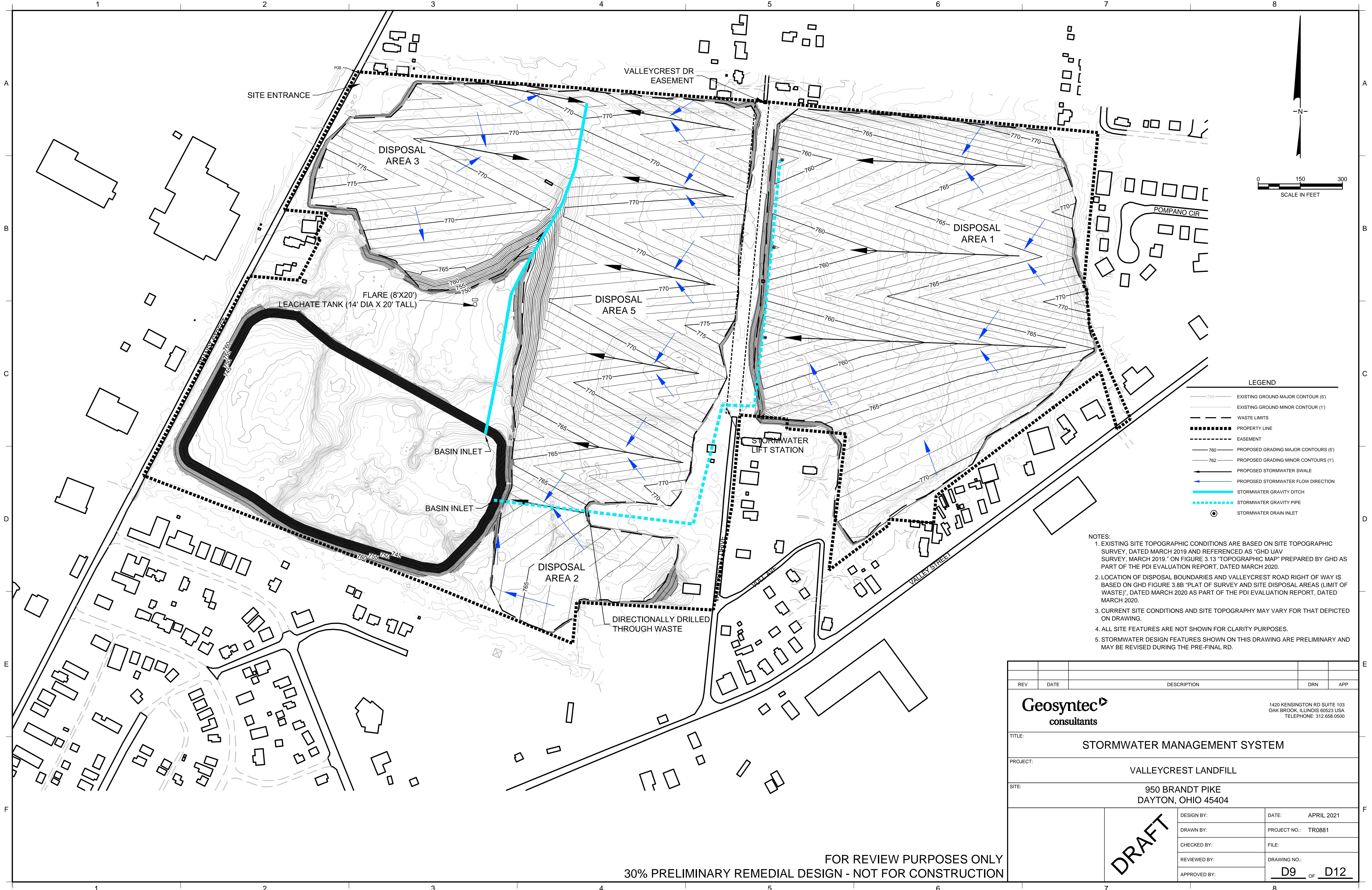
- NOTES:
1. EXISTING SITE TOPOGRAPHIC CONDITIONS ARE BASED ON SITE TOPOGRAPHIC SURVEY, DATED MARCH 2019 AND REFERENCED AS "GHD UAV SURVEY, MARCH 2019." ON FIGURE 3.13 "TOPOGRAPHIC MAP" PREPARED BY GHD AS PART OF THE PDI EVALUATION REPORT, DATED MARCH 2020.
 2. LOCATION OF DISPOSAL BOUNDARIES AND VALLEYCREST ROAD RIGHT OF WAY IS BASED ON GHD FIGURE 3.8B "PLAT OF SURVEY AND SITE DISPOSAL AREAS (LIMIT OF WASTE)", DATED MARCH 2020 AS PART OF THE PDI EVALUATION REPORT, DATED MARCH 2020.
 3. BOTTOM OF WASTE GRADES IS BASED ON GHD FIGURE 3.10 "BOTTOM OF WASTE CONTOUR MAP", DATED MARCH 2020 AS PART OF THE PDI EVALUATION REPORT, DATED MARCH 2020.
 4. CURRENT SITE CONDITIONS AND SITE TOPOGRAPHY MAY VARY FOR THAT DEPICTED ON DRAWING.
 5. ALL SITE FEATURES ARE NOT SHOWN FOR CLARITY PURPOSES.
 6. DUAL EXTRACTION WELL LOCATIONS SHOWN ON THIS DRAWING ARE PRELIMINARY AND MAY BE REVISED DURING THE PRE-FINAL RD.

REV	DATE	DESCRIPTION	DRN	APP
		Geosyntec consultants		
		1420 KENSINGTON RD SUITE 103 OAK BROOK, ILLINOIS 60023 USA TELEPHONE: 312.658.0500		
TITLE:		LEACHATE AND LANDFILL MANAGEMENT SYSTEMS		
PROJECT:		VALLEYCREST LANDFILL		
SITE:		950 BRANDT PIKE DAYTON, OHIO 45404		
DRAFT		DESIGN BY:	DATE:	APRIL 2021
		DRAWN BY:	PROJECT NO.:	TR0881
		CHECKED BY:	FILE:	
		REVIEWED BY:	DRAWING NO.:	
		APPROVED BY:	D6	OF D12

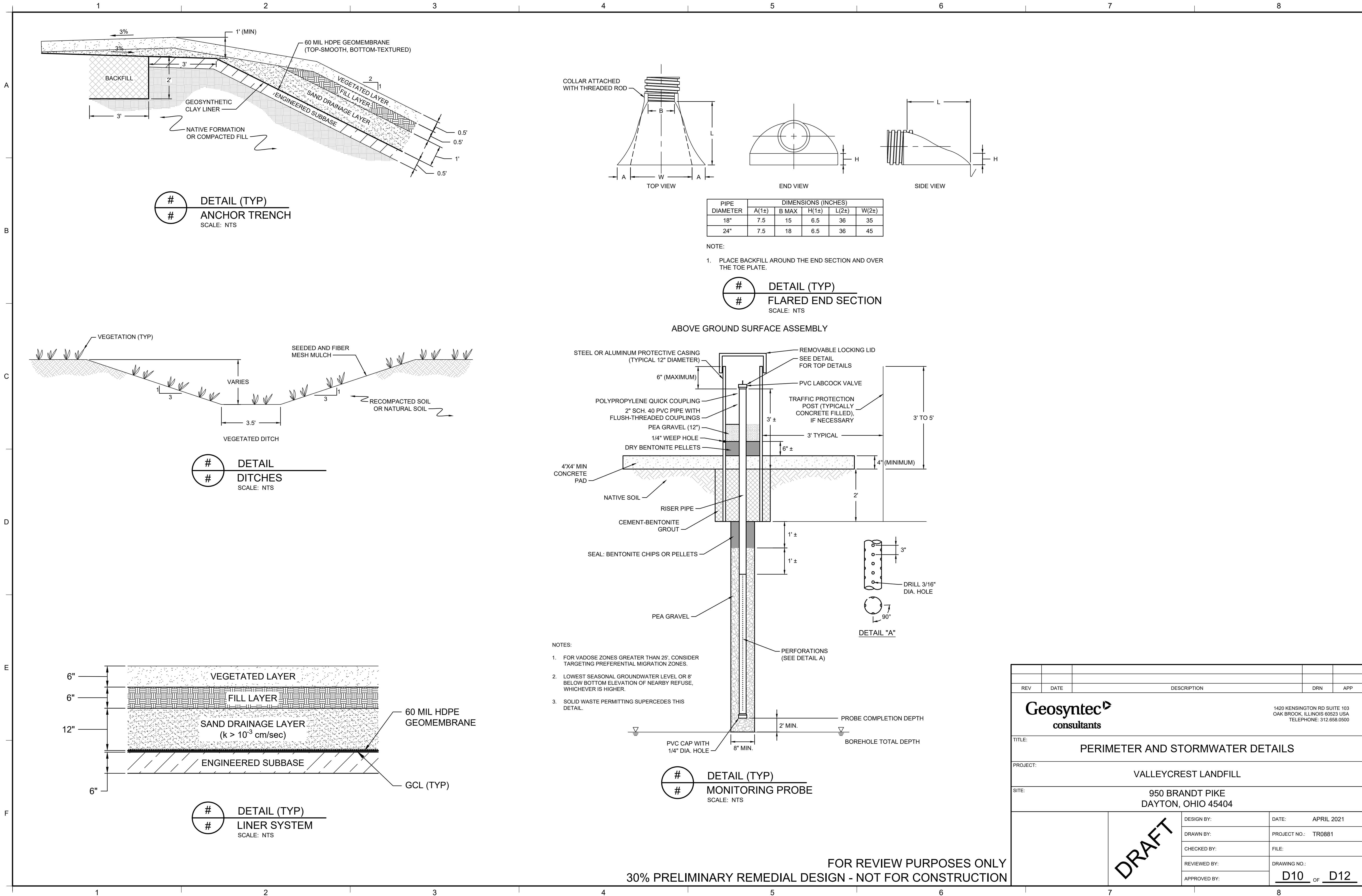
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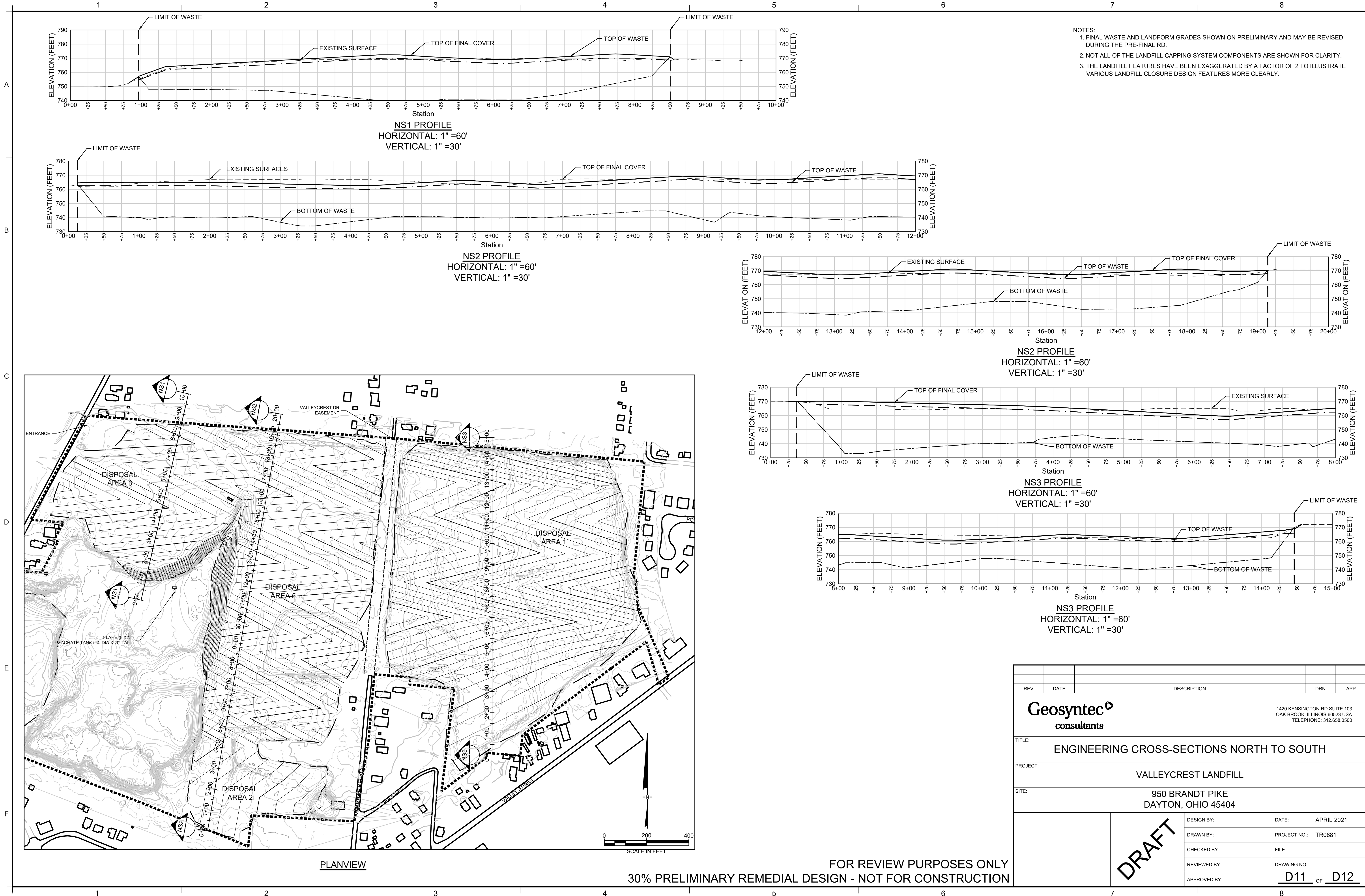


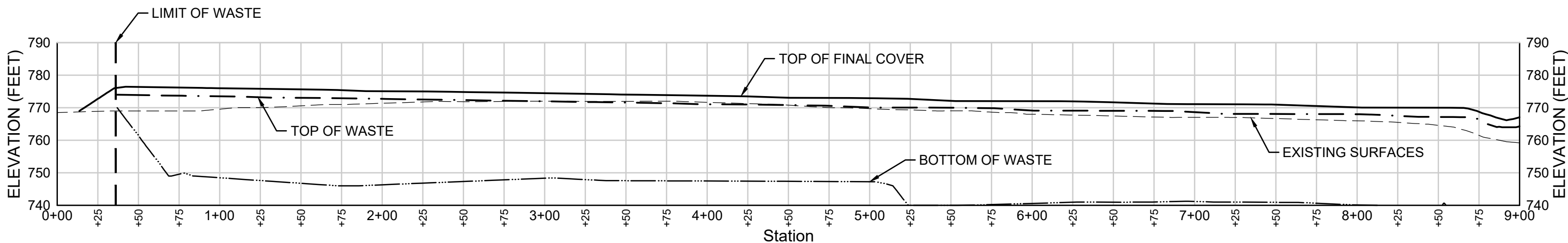
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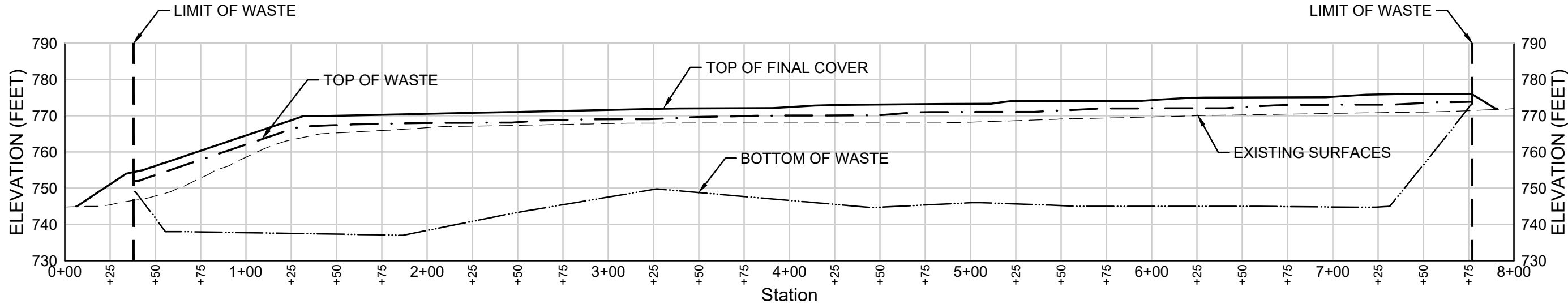
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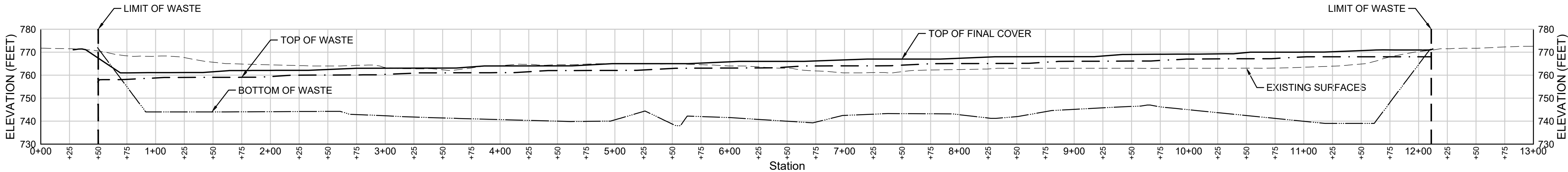




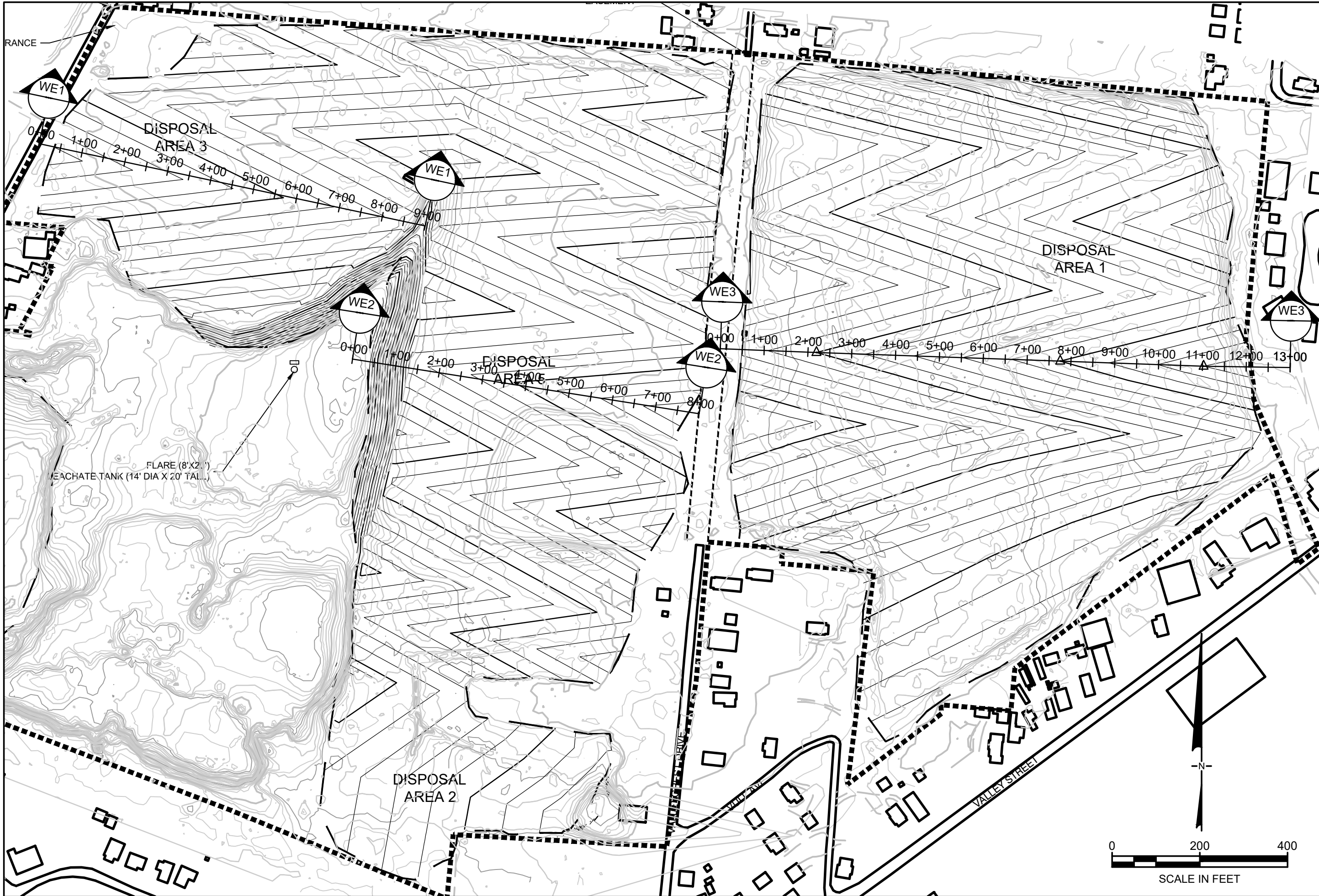
WE1 PROFILE
HORIZONTAL: 1" =60'
VERTICAL: 1" =30'



WE2 PROFILE
HORIZONTAL: 1" =60'
VERTICAL: 1" =30'



WE3 PROFILE
HORIZONTAL: 1" =60'
VERTICAL: 1" =30'



PLANVIEW

- NOTES:
- 1. FINAL WASTE AND LANDFORM GRADES SHOWN ON PRELIMINARY AND MAY BE REVISED DURING THE PRE-FINAL RD.
 - 2. NOT ALL OF THE LANDFILL CAPPING SYSTEM COMPONENTS ARE SHOWN FOR CLARITY.
 - 3. THE LANDFILL FEATURES HAVE BEEN EXAGGERATED BY A FACTOR OF 2 TO ILLUSTRATE VARIOUS LANDFILL CLOSURE DESIGN FEATURES MORE CLEARLY.

FOR REVIEW PURPOSES ONLY

30% PRELIMINARY REMEDIAL DESIGN - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
		<div>Geosyntec consultants</div> <div>1420 KENSINGTON RD SUITE 103 OAK BROOK, ILLINOIS 60523 USA TELEPHONE: 312.658.0500</div>		
TITLE:		ENGINEERING CROSS-SECTIONS WEST TO EAST		
PROJECT:		VALLEYCREST LANDFILL		
SITE:		950 BRANDT PIKE DAYTON, OHIO 45404		
DRAFT		DESIGN BY:	DATE: APRIL 2021	
		DRAWN BY:	PROJECT NO.: TR0881	
		CHECKED BY:	FILE:	
		REVIEWED BY:	DRAWING NO.:	
		APPROVED BY:	D12 OF D12	

APPENDIX B

**CONSTRUCTION QUALITY ASSURANCE/QUALITY
CONTROL PLAN**

CONSTRUCTION QUALITY ASSURANCE/QUALITY CONTROL PLAN

North Sanitary Landfill Dayton, Ohio

Submitted to

USEPA



Submitted by

Geosyntec 
consultants

engineers | scientists | innovators

931 Chatham Lane, Suite 103
Columbus, Ohio 43221

Project Number TR0881

April 2021

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CQA/QCP Worksheet #4	Project Personnel Sign-Off Sheet
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CQA/QCP Worksheet #6	Communication Pathways
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CQA/QCP Worksheet #22	Field Equipment Calibration
CQA/QCP Worksheet #23	Testing Methods
CQA/QCP Worksheet #29	Project Documents and Records

SECTION 1

INTRODUCTION

1.1 Purpose of CQA/QCP

This Construction Quality Assurance/Quality Control Plan (CQA/QCP) for the North Sanitary (a.k.a. Valleycrest) Landfill (Site) in Dayton, Ohio was developed per Section 6.7a of Appendix B (Statement of Work [SOW] for Remedial Design and Remedial Action [RD/RA]) of the 2018 Consent Decree (CD) for the Site. Per SOW Section 6.7a, the CQA/QCP must:

- (1) *Identify, and describe the responsibilities of, the organizations and personnel implementing the CQA/QCP;*
- (2) *Describe the performance standards (PS) required to be met to achieve completion of the RA;*
- (3) *Describe the activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;*
- (4) *Describe verification activities, such as inspections, sampling, testing, monitoring, and production controls, under the CQA/QCP;*
- (5) *Describe industry standards and technical specifications used in implementing the CQA/QCP;*
- (6) *Describe procedures for tracking construction deficiencies from identification through corrective action;*
- (7) *Describe procedures for documenting all CQA/QCP activities; and*
- (8) *Describe procedures for retention of documents and for final storage of documents.*

The program set forth in this document shall be used by a third-party consultant, independent from the construction contractor to verify that the remedy is constructed in accordance with the Final Design and achieves the applicable PSs. RA construction monitoring and documentation will be performed for installation of the soils, geosynthetics, leachate and landfill gas (LFG) management systems, erosion controls, and related features of the remedy, as shown on the Final Design documents (i.e., Drawings, specifications, etc.).

This construction may include items such as installation of the leachate above ground storage tank (AST) and associated foundation, lift stations, LFG flare, conveyance piping, and air compressor modules. Some activities may not require a daily CQA presence at the Site (such as delivery of materials, placing of rebar, etc.) so long as the CQA Consultant can verify that the specified Final Design is adhered to. For example, if the RA Contractor needs three days to place rebar in a

foundation excavation, the CQA Consultant may observe the placed rebar on the third day after all the rebar has been placed.

This CQA/QCP is intended to supplement the Final Design and to provide a reference for the parties involved with assuring the quality of construction for this project. The CQA/QCP is not intended to cover analytical testing and the elements of the Quality Assurance Project Plan (QAPP) for the Site. The organization of information contained in this CQA/QCP is generally parallel to the organization of Division 1 through Division 6 of the specifications.

This document has been prepared as part of the Preliminary (30%) RD and therefore will require revision as part of completing the Pre-Final (95%) and Final RD.

1.2 CQA/QCP Elements Relevant to the UFP-QAPP Manual

This CQA/QCP is presented in a format which includes worksheets outlined in the uniform federal policy for Quality Assurance Project Plans (UFP-QAPP Manual). The UFP-QAPP Manual is a consensus quality systems document prepared by the Intergovernmental Data Quality Task Force (IDQTF), a working group made up of representatives from the United States Environmental Protection Agency (USEPA), the Department of Defense (DoD), and the Department of Energy (DOE). There are 37 “Optimized UFP-QAPP Worksheets” which, once completed, contain all required elements of a QAPP.

However, only certain elements of the CQA/QCP are relevant to certain UFP-QAPP Worksheets. Much of the information required by the UFP-QAPP will be included in the project QAPP.

To provide information in the required format, this CQA/QCP includes only those worksheets (CQA/QCP Worksheets) which are relevant for construction quality control. Worksheets which are to contain information regarding analytical testing of materials are not included. The following UFP-QAPP Worksheets are included in this CQA/QCP but may change upon completion of the Pre-Final RD:

- CQA/QCP Worksheet #1 Title and Approval Page
- CQA/QCP Worksheet #2 CQA/QCP Identifying Information
- CQA/QCP Worksheet #3 Distribution List
- CQA/QCP Worksheet #4 Project Personnel Sign-Off Sheet
- CQA/QCP Worksheet #5.1 RA Construction Organization Chart
- CQA/QCP Worksheet #5.2 CQA Construction Organization Chart
- CQA/QCP Worksheet #6 Communication Pathways

- CQA/QCP Worksheet #7 Personnel Responsibilities and Qualifications Table
- CQA/QCP Worksheet #8 Special Personnel Training Requirements Table
- CQA/QCP Worksheet #9 Project Meetings Participants Sheet
- CQA/QCP Worksheet #22 Field Equipment Calibration
- CQA/QCP Worksheet #23 Testing Methods
- CQA/QCP Worksheet #29 Project Documents and Records

The following table provides a “cross-walk” between the CQA/QCP elements and worksheets that are relevant to certain QAPP elements outlined in the UFP-QAPP Manual.

Table 1-1 Crosswalk			
Section(s) of UFP-QAPP Manual	CQA/QCP Relevant Information	Crosswalk to Worksheet No.	CQA/QCP Page No.
2.1 - Title and Approval Page	Title and Approval Page	1	Section 1, 5
2.2 - CQA/QCP Identifying Information	CQA/QCP Identifying Information	2	Section 1, 6
2.3 - Distribution List and Project and Personnel Sign-Off Sheet	Distribution List	3	Section 1, 7
	Project Personnel Sign-Off Sheet	4	Section 1, 8
2.4 - Project Organization	Project Organization Chart RD/RA	5.1	Section 1, 11
	Project Organization Chart CQA	5.2	Section 1, 12
	Communication Pathways	6	Section 1, 18
	Personnel Responsibilities	7	Section 1, 19
	Special Personnel Training Requirements	8	Section 1, 21
2.5 - Project Planning/Problem Definition	Project Meetings Conceptual Site Model (Not Applicable (N/A) for CQA/QCP, see project QAPP)	9 N/A (10)	Section 1, 26 N/A
2.6 - Project Quality Objectives	See project QAPP for PQOs and Measurement Performance Criteria	N/A (11) N/A (12)	N/A N/A
2.7 - Secondary Data Evaluation	N/A for CQA/QCP – Not Using Secondary Data	N/A (13)	N/A
2.8 - Project Overview and Schedule	N/A for CQA/QCP - see Remedial Design Report for Project Tasks and Schedule. Project Specific Detection/Quantitation Limits for Environmental Samples is included in the project QAPP	N/A (14) N/A (15) N/A (16)	N/A N/A N/A
3.1- Sampling Tasks	see project QAPP for Analytical Sampling Tasks CQA Field Equipment Calibration Table	N/A (17) N/A (18) N/A (19) N/A (20) N/A (21) 22	N/A N/A N/A N/A N/A Section 5, 6
3.2 - Analytical Tasks – Analytical SOPs, Analytical Instrument Calibration Procedures, Maintenance, and Inspection	CQA Methods Table see project QAPP for Analytical SOPs, Analytical Instrument Calibration Procedures, Maintenance, and Inspection	23 N/A (24) N/A (25)	Section 5, 7 N/A N/A

Table 1-1 Crosswalk			
Section(s) of UFP-QAPP Manual	CQA/QCP Relevant Information	Crosswalk to Worksheet No.	CQA/QCP Page No.
3.3 – Analytical Sample Collection Documentation, Handling, Tracking, and Custody Procedures	See project QAPP for analytical sample collection, handling, tracking and custody procedures	N/A (26) N/A (27)	N/A N/A
3.4 – Analytical Quality Control Samples	See project QAPP	N/A (28)	N/A
3.5 –Data Management	CQA Documentation & Records Analytical Services Table	29 N/A (30)	Section 7, 7 N/A
4.1 – Assessment and Response Actions	See project QAPP for Project Assessment and Response Actions	N/A (31) N/A (32) N/A (33)	N/A N/A N/A
5.1 – Data Review	See project QAPP for Project Analytical Data Validation Information	N/A (34) N/A (35) N/A (36) N/A (37)	N/A N/A N/A N/A

The following pages include the title and approval page (**Worksheet #1**) and CQA/QCP identifying information (**Worksheet #2**), CQA/QCP Distribution List (**Worksheet #3**), and CQA/QCP Project Personnel Sign-Off Sheet (**Worksheet #4**).

CQA/QCP Worksheet #1
Title and Approval Page

Construction Quality Assurance/Quality Control Plan
for
North Sanitary Landfill Superfund Site
Dayton, Ohio

USEPA Region 5

Prepared by:



931 Chatham Lane, Suite 103
Columbus, Ohio 43221

Date: April 2021

SWP Project Coordinator

Signature_____

CQA Project Manager:

Signature_____

CQA Certifying Engineer:

Signature_____

USEPA Remedial Project Manager:

Signature_____

CQA/QCP Worksheet #2
CQA/QCP Identifying Information

Site Name/Project: North Sanitary Landfill Superfund Site

Site Location: Dayton, Ohio

Regulatory Program: CERCLA¹

Approval Entities: USEPA Region 5

Plans and Reports Relevant to this CQA/QCP:

North Sanitary Landfill Superfund Site Remedial Design Work Plan dated February 2021

North Sanitary Landfill Superfund Site Remedial Design Report dated April 2021

North Sanitary Landfill Superfund Site Design Drawings dated April 2021

¹ The North Sanitary Landfill is a USEPA-led Superfund Site.

CQA/QCP Worksheet #3
Distribution List

CQA/QCP Recipients	Title	Organization	Phone No.	E-mail
Dion Novak	Remedial Project Manager	USEPA, Region 5	(312) 886-4737	novak.dion@epa.gov
Scott Glum	Project Manager	Ohio EPA	(937) 285-6065	scott.glum@epa.ohio.gov
Michael H. Samples	SWP Project Coordinator	<i>de maximis, inc.</i>	(865) 691-5052	mikes@demaximis.com
Ian Richardson, P.E.	RD Project Director	Geosyntec Consultants	(519) 514-2643	irichardson@geosyntec.com
Jesse Varsho, P.E.	RD Engineer	Geosyntec Consultants	(630) 203-3349	jvarsho@geosyntec.com
John Buyers	RD Project Manager	Geosyntec Consultants	(519) 514-2644	jbuyers@geosyntec.com
To Be Named	CQA Site Manager	To Be Named		
To Be Named	CQA Geotechnical Testing Laboratory	To Be Named	To Be Named	To Be Named
To Be Named	CQA Surveyor	To Be Named	To Be Named	To Be Named
To Be Named	RA Contractor	To be Named	To be Named	To be Named

CQA/QCP Worksheet #4
Project Personnel Sign-Off Sheet

Project Personnel	Title	Organization	Phone No.	Date CQA/QCP Read	Signature
To Be Named	CQA Certifying Engineer		To Be Named		
To Be Named	RD Project Manager		To Be Named		
To Be Named	CQA Site Manager		To Be Named		
To Be Named	CQA Technician		To Be Named		
To Be Named	CQA Technician		To Be Named		
To Be Named	CQA Geotechnical Testing Laboratory	CQA Geotechnical Testing Laboratory	To Be Named		
To Be Named	CQA Surveyor	CQA Surveyor	To Be Named		
To Be Named	RA Contractor Project Manager	RA Contractor	To Be Named		

1.3 Construction Quality Assurance and Construction Quality Control

The CQA/QCP is a Site-specific document which addresses the following: (i) CQA Consultant responsibilities and authorities; (ii) monitoring and testing activities that will be performed during implementation of the remedy for the Site; and (iii) CQA documentation requirements. In the

context of this document, Construction Quality Assurance and Construction Quality Control are defined as follows:

- Construction Quality Assurance (CQA) refers to means and actions employed by the CQA Consultant, to ensure conformity of the remedy construction with the requirements of the Final Design (i.e., drawings, specifications, plans, and this CQA/QCP). CQA is provided by a consultant independent from the RA contractor.
- Construction Quality Control (CQC) refers to those actions taken by the RA Contractor, manufacturers, or suppliers, including their designated representatives, to ensure that the materials and the workmanship meet the requirements of the Final Design.

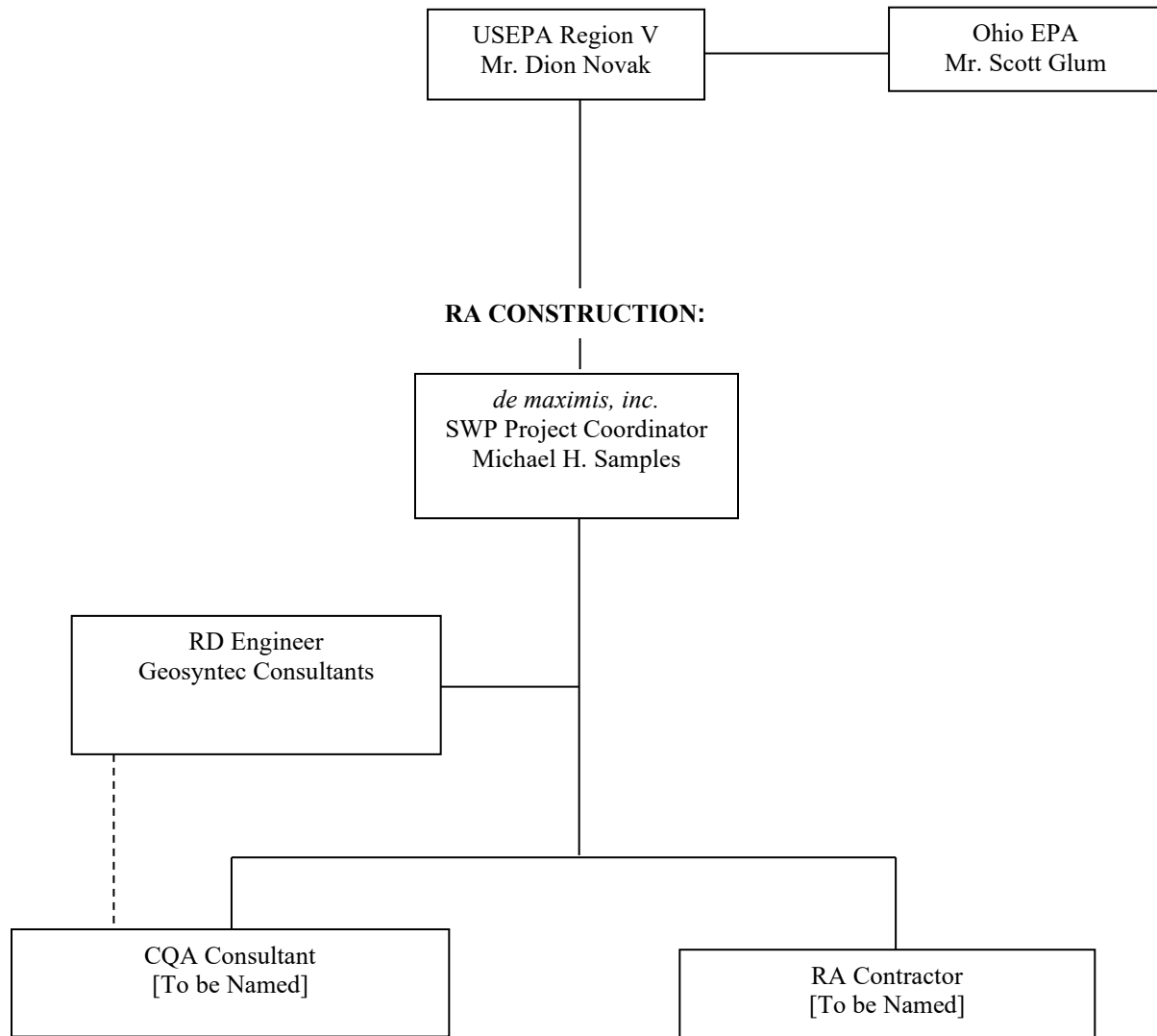
1.4 Project Personnel

1.4.1 Organization of Personnel

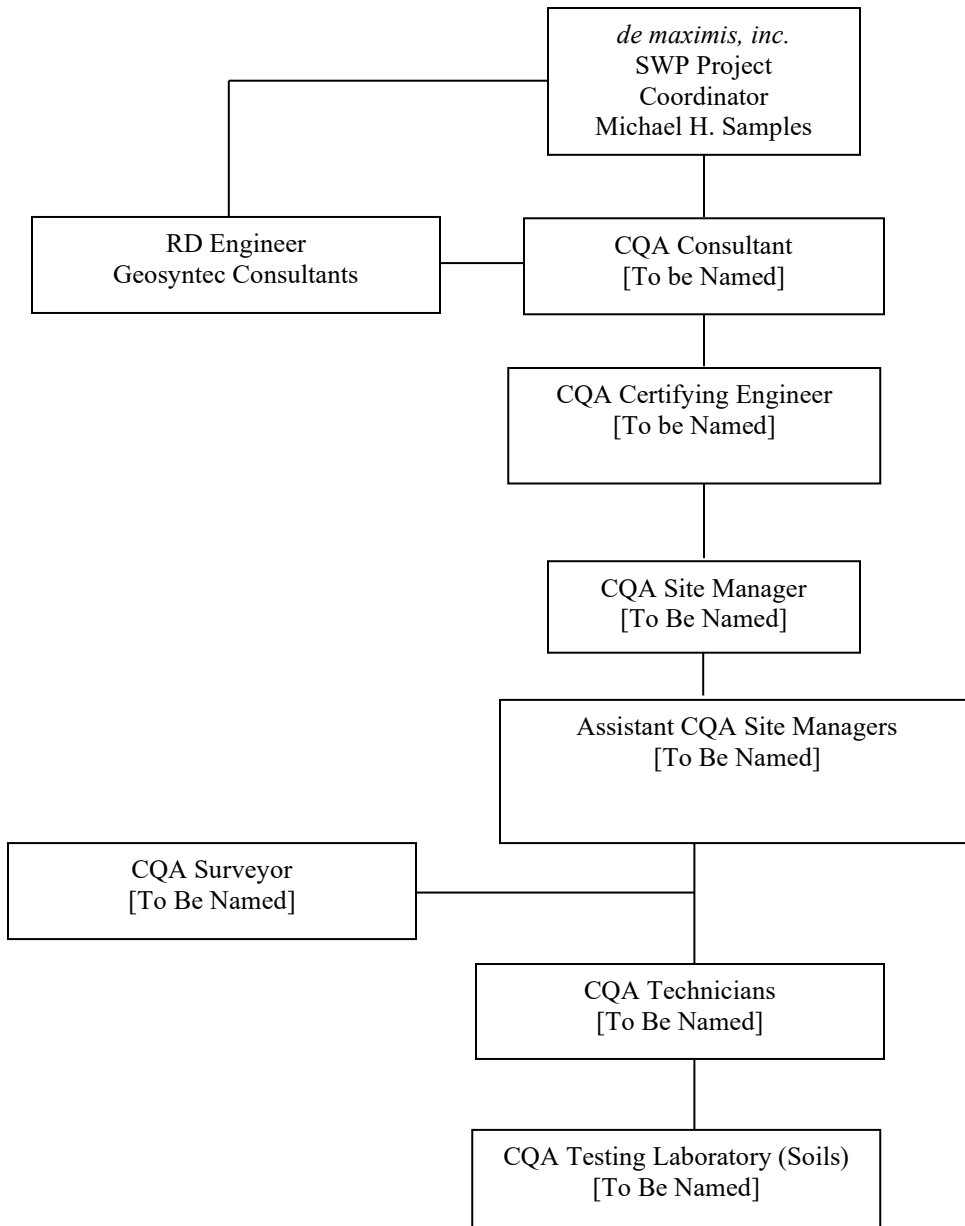
The project personnel organization chart for construction of the remedy is provided in **CQA/QCP Worksheet #5.1**, and the personnel directly involved with the CQA are shown in **CQA/QCP Worksheet #5.2**. **CQA/QCP Worksheets #5.1** and **#5.2** are located at the end of this section. The communication pathways are shown in **CQA/QCP Worksheet #6** at the end of this section. The duties, responsibilities, and authorities of the entities and personnel positions identified in these figures as they relate to the CQA program are described below and summarized in **CQA/QCP Worksheet #7** at the end of this section. All on-Site project personnel will have received 40-hour OSHA training prior to entering the Site (see **CQA/QCP Worksheet #8** at the end of this section).

As shown on **Worksheets #5.1** and **#5.2**, in some cases the individual names and their affiliations of the project personnel are not identified. Updated project personnel organization charts that name the responsible individuals and their affiliation will be issued to the USEPA and Ohio Environmental Protection Agency (Ohio EPA) after completion of the Final Design and after the bidding process (at least four weeks prior to the start of RA construction). These project personnel organization charts will be discussed during the pre-construction meeting (see Section 1.6 of this CQA/QCP) and will be attached to the pre-construction meeting minutes and distributed to the meeting attendees.

CQA/QCP Worksheet #5.1
RA Construction Organization Chart
North Sanitary Landfill Site
Dayton, Ohio



CQA/QCP Worksheet #5.2
CQA Construction Organization Chart
North Sanitary Landfill Site
Dayton, Ohio



1.4.2 Contract with the RA Contractor(s) and the CQA Consultant

The Settling Work Parties (SWPs) will contract with the RA Contractor(s) for implementation of the remedy and with the CQA Consultant to implement the CQA program. The SWPs will designate a Project Coordinator to serve as the primary point of contact and to act as construction manager/lead representative during the project.

1.4.3 Regulatory Agencies

Regulatory agencies providing oversight for this project are the USEPA Region 5 and the Ohio EPA. Additionally, the USEPA may contract with a consultant to serve as their field representative during implementation of the RA. These agencies and their designated representatives (identified on **Worksheet #5.1**) will provide regulatory oversight on the RA phase of the project. Project deliverables (e.g., progress reports, completion reports, etc.) will be submitted to the USEPA and its field representative for their review and approval as described subsequently in this CQA/QCP.

1.4.4 RA Contractor

The RA Contractor will be the construction company that contracts with the SWPs to implement the RA construction phase of the project. The scope of the RA Contractor's activities is to construct and perform the work to satisfy the approved Final Design, as set forth in the Contract Documents (Drawings, specifications, Plans, Contract Terms and Conditions).

1.4.5 CQA Consultant

The CQA Consultant will be an independent (from the RA Contractor) engineering firm that contracts with the SWPs to implement the CQA program described in this document. Specific responsibilities of the CQA Consultant are described in the remainder of Section 1.4.5 of this CQA/QCP.

1.4.5.1 CQA Certifying Engineer

The CQA Certifying Engineer will serve as the lead quality assurance official on the project. As such, the CQA program will be directed and supervised by the CQA Certifying Engineer. He/she will be directly accessible to the SWP Project Coordinator, RD Engineer, and the CQA Consultant for technical direction during construction. The CQA Certifying Engineer must be a registered Professional Engineer (Civil) in the State of Ohio. The responsibilities and duties of the CQA Certifying Engineer include the following:

- Be familiar with the design calculations used to develop the Final Design;

- Review conformance of material and construction to verify compliance with the intent of the requirements of the Final Design;
- Be familiar with other Site-specific documentation, including the RA Contractor's bid;
- Review and approve the RA Contractor's submittals;
- Conduct periodic Site inspections;
- Attend the meetings described in Section 1.6 of this CQA/QCP;
- Administer the CQA program (i.e., assign and manage the CQA/QCP activities, review field reports, and provide engineering review of CQA-related issues);
- Oversee the ongoing preparation of as-built drawings by the RA Contractor;
- Review and approve the CQA Surveyor's work products; and
- Prepare and certify the RA Construction Report.

1.4.5.2 CQA Site Manager

The CQA Site Manager will report to the CQA Certifying Engineer and will supervise and direct the day-to-day CQA activities on the project. The CQA Site Manager will interact on a frequent basis with the CQA Certifying Engineer and will have authority as the CQA Consultant. The CQA Site Manager will also serve as the point of contact and oversee the work of the CQA Surveyor and the CQA Testing Laboratory. The CQA Site Manager must have field CQA work experience on at least five previous landfill projects, two of which must involve final closure. The responsibilities and duties of the CQA Site Manager include the following:

- Be familiar with the basic concepts used to develop the Final Design;
- Evaluate the conformance of material and construction to verify compliance with the intent of the requirements of the Final Design;
- Be familiar with other Site-specific documentation, including the RA Contractor's bid;
- Attend the meetings described in Section 1.6 of this CQA/QCP;
- Direct and supervise daily CQA activities (e.g., assign and manage the CQA/QCP activities, review field reports, and interact with the RA Contractor and the CQA Certifying Engineer on a frequent basis);
- Coordinate and supervise preparation of CQA documentation by the CQA technician(s), and maintain the on-Site documentation in a neat and organized manner;
- Oversee the ongoing preparation of as-built drawings by the RA Contractor;

- Review the CQA Surveyor's work products; and
- Prepare the RA Construction Report.

1.4.5.3 CQA Technician(s)

The CQA Technician(s) will be responsible for on-Site CQA activities. The CQA Technician(s) must have on-Site field CQA work experience on at least one previous project. The general duties of the CQA Technician will include the following:

- Be familiar with the CQA requirements for the project;
- Perform daily CQA activities as needed;
- Attend CQA-related meetings discussed in Section 1.6 of this CQA/QCP;
- Verify the calibration and condition of on-Site CQA equipment;
- Assign locations for testing and sampling;
- Perform CQA field testing;
- Monitor the RA Contractor's CQC testing activities and review soils CQC data;
- Establish, with the CQA Certifying Engineer, additional testing requirements beyond those in the specifications and/or CQA/QCP, when necessary;
- Coordinate collection and shipping of geotechnical laboratory test samples;
- Monitor material delivery when possible to document that materials are not damaged prior to or during unloading;
- Review and report results of laboratory testing and manufacturer and RA Contractor testing;
- Review and assist the CQA Site Manager and the CQA Certifying Engineer in approving the RA Contractor's submittals;
- Prepare CQA daily field reports that include descriptions of the construction progress and any relevant observations;
- Provide daily field reports and logs to the CQA Certifying Engineer upon request;
- Report any unresolved deviations from the Final Design to the CQA Certifying Engineer; and
- Assist in preparing the RA Construction Report.

In addition to these duties, the CQA Technician(s) will take note of on-Site activities that could result in damage to the soils, geosynthetics, or other components of the project. Observations so noted will be reported as soon as possible to the RA Contractor and to the CQA Site Manager and the CQA Certifying Engineer.

1.4.5.4 CQA Testing Laboratory

The CQA Testing Laboratory will be a geotechnical testing laboratory that has experience in the physical testing of soils and properly equipped to perform the geotechnical testing required by the CQA/QCP. The CQA Testing Laboratory may be a subcontractor to the CQA Consultant or may be performed in-house by a laboratory-testing division of the CQA Consultant. CQA Testing Laboratory personnel will report to the CQA Site Manager, who will direct the laboratory personnel on the CQA testing requirements (methods, workload, deadlines, test results, etc.).

1.4.5.5 CQA Surveyor

A CQA Surveyor, contracted by the CQA Consultant or by the SWPs, will provide survey data to verify the RA Contractor's work and spot-verify as-built documentation. The CQA Surveyor will report directly to the CQA Certifying Engineer. Responsibilities of the CQA Surveyor will include spot-checking of soil layer thickness, grade (slope), locations of key features, and providing quality assurance of Record Drawings.

The duties of the CQA Surveyor are for verification and do not lessen the responsibility of the RA Contractor to provide its own surveying to lay out, control, and document the work. The RA Contractor is required to meet the surveying and as-built drawing requirements set forth in the specifications.

CQA/QCP Worksheet #6 Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone No.	Procedure (Timing Pathways, etc.)
Regulatory Oversight of CQA Activities	USEPA Designated Representative	To Be Named	To Be Named	Direct access to CQA Certifying Engineer and CQA Site Manager
Oversight of CQA Activities	CQA Certifying Engineer	To Be Named	To Be Named	Directly accessible to the SWP Project Coordinator, and the RD Engineer for technical direction
Manage CQA Activities	CQA Site Manager	To Be Named	To Be Named	Interact on a frequent basis with the CQA Certifying Engineer, point of contact and oversee the work of the CQA Surveyor, the CQA Testing Laboratory, coordinate day-to-day CQA Activities with CQA Technician(s) and communicate any field CQA issues to CQA Certifying Engineer
Conduct CQA Activities	CQA Technician(s)	CQA Technician(s) (To Be Named)	To Be Named	Conduct day to day field CQA activities and communicate on a daily basis with the CQA Site Manager
Conduct CQA Geotechnical Testing	CQA Geotechnical Testing Laboratory	To Be Named	To Be Named	Coordination with CQA Site Manager
Conduct CQA Surveying	CQA Surveyor	To Be Named	To Be Named	Coordination with CQA Site Manager

CQA/QCP Worksheet #7
Personnel Responsibilities and Qualifications Table

Name	Title	Organization	Responsibilities	Required Qualifications
To Be Named	RA Contractor	To Be Named	The scope of the RA Contractor's activities is to construct and perform the work to satisfy the IEPA-approved Final Design, as set forth in the Contract Documents (Drawings, specifications, Plans, Contract Terms and Conditions)	Contractor work is to be bid by potential contractors. RA Contractor will be selected based on review of qualified contractor proposals to complete the required scope of work.
To Be Named	CQA Certifying Engineer	To Be Named	Review conformance of material and construction to verify compliance with the intent of the requirements of the Final Design; Review and approve the RA Contractor's submittals; Conduct periodic Site inspections; Attend the required meetings (Section 1.5); Administer the CQA program; Oversee preparation of as-built drawings by the RA Contractor; Review and approve the CQA Surveyor's work products; and Prepare and certify the RA Construction Report	Registered Professional Engineer (Civil) in the State of Ohio
To Be Named	CQA Site Manager	To Be Named	Evaluate the conformance of material and construction to verify compliance with the intent of the requirements of the Final Design; Attend the meetings described in Section 1.5 of CQA/QCP; Direct and supervise daily CQA activities; Coordinate and supervise preparation of CQA documentation, and maintain the on-Site documentation; Oversee the ongoing preparation of as-built drawings by the RA Contractor; Review the CQA Surveyor's work products; and Prepare the RA Construction Report.	The CQA Site Manager must have on-Site field CQA work experience on at least five previous landfill projects, two of which must involve final closure.
To Be Named	CQA Technician(s)	To Be Named	Perform daily CQA activities.	The CQA Technicians must have field CQA work experience on at least one previous project.

Name	Title	Organization	Responsibilities	Required Qualifications
To Be Named	CQA Geotechnical Testing Laboratory	To Be Named	Physical testing of soils required by the CQA/QCP.	The CQA Testing Laboratory will be a geotechnical testing laboratory firm that has experience in the physical testing of soils and properly equipped to perform the geotechnical testing required by the CQA/QCP.
To Be Named	CQA Surveyor	To Be Named	Spot-checking of soil layer thickness, grade (slope), locations of key features, and providing quality assurance of Record Drawings.	The CQA Surveyor will be a surveyor that has experience in CQA surveying of landfills.

CQA/QCP Worksheet #8
Special Personnel Training Requirements Table

Project Function	Specialized Training	Training Provider	Training Date	Personnel/Groups Required Training	Personnel Titles/Organization	Location of Training Records
All Field Activities	40-hour OSHA Training and Annual 8-hour refresher	40 hour Training Vendor	Various – prior to Site work	All CQA and subcontractor personnel	CQA Staff and Subcontractors, USEPA designated representative	On Site and respective organization databases
All Field Activities	Site Supervisor Training	Training Vendor	Various – prior to Site work	CQA Site Manger	CQA Site Manager	On Site and respective organization databases

1.5 Applicable References

Organizations whose standards are referenced in the CQA/QCP and the specifications are as follows:

- AASHTO - American Association of State Highway and Transportation Officials;
- ASTM - American Society for Testing and Materials;
- USEPA - United States Environmental Protection Agency
- ODOT - Ohio Department of Transportation;
- Ohio EPA - Ohio Environmental Protection Agency; and
- OSHA - Occupational Safety and Health Administration.

Any reference to standards of any society, institute, association, or governmental agency will pertain to the edition in effect as of the date of this CQA/QCP, unless stated otherwise.

1.6 Site and Project Meetings

1.6.1 Pre-Construction Meeting

Prior to initiating construction activities at the Site, requirements set forth in the Final RD will be addressed in a pre-construction meeting. At a minimum, the meeting will be attended by the CQA Certifying Engineer, the CQA Surveyor, the RA Contractor, and representatives of the SWPs. The meeting also may be attended by the by USEPA and Ohio EPA representatives.

The purpose of this meeting is to begin planning for coordination of tasks, to present the schedule and sequence of work, to discuss anticipated problems that might cause difficulties and delays in construction and present the procedures for clarifications.

The pre-construction meeting should include discussion of the following activities:

- Review the responsibilities of each party;
- Confirm the lines of authority and communication, and update/finalize project personnel organization charts;
- Distribute relevant documents to all parties;
- Review critical design details of the project;
- Review the RA Contractor's schedule;

- Address approved modifications to the CQA/QCP;
- Address approved modifications to the Final Design so that the fulfillment of design specifications or PSs can be achieved;
- Establish an understanding by the parties of the CQA/QCP, and QA and QC procedures;
- Establish work area security and safety protocol in accordance with the RA Contractor's health and safety plan for the remedy;
- Describe soil borrow source locations;
- Establish soil stockpiling locations;
- Confirm QA and QC testing subcontractors;
- Confirm the methods for documenting and reporting, and for distributing documents and reports; and
- Confirm acceptance and approval process for task completion prior to schedule sequence advancement.

Items discussed during the pre-construction meeting will be documented by a person designated at the beginning of the meeting, and minutes will be distributed within 10 days of the meeting.

1.6.2 Progress Meetings

A weekly progress meeting (via teleconference and/or at the Site) will be held each week during construction between the CQA Certifying Engineer and/or CQA Site Manager, the CQA Consultant, the RA Contractor, and the SWPs. Current progress planned activities for the upcoming week, and any new business or revisions to the work will be discussed at this meeting.

The CQA Certifying Engineer will document in the meeting minutes any problems, decisions, or questions arising at this meeting. Any matters requiring action which are raised in this meeting will be reported to the appropriate parties. Minutes of weekly progress meetings will be distributed to each party present at the meeting within five working days. A record of any project meeting participants will be kept in documents that are in the format of **CQA/QCP Worksheet #9** included at the end of Section 1.6.

Daily progress meetings will be held between the CQA Consultant and the RA Contractor prior to the start of work. The purpose of these meetings will be to maintain safe working environment for all project personnel, to review the schedule for the day, previous day's activities, and identify any needs or potential construction problems. Major items discussed during these meetings will be documented in the CQA Consultant's daily field reports.

1.6.3 Problem or Work Deficiency Meetings

Special meetings will be held by the CQA Certifying Engineer when and if problems or deficiencies are present or judged likely to occur. At a minimum, these meetings will be attended by the RA Contractor, the CQA Site Manager, the SWP Project Coordinator, and the CQA Consultant. The Engineer will participate if needed. The purpose of these meetings will be to define and resolve the problem or work deficiency as follows:

- Define and discuss the problem or deficiency;
- Review alternative solutions; and
- Implement an action plan to resolve the problem or deficiency.

Items discussed during these meetings will be documented by the CQA Site Manager, and if deemed necessary by the CQA Certifying Engineer, minutes will be transmitted to affected parties.

CQA/QCP Worksheet #9
Project Meetings Participants Sheet

Site Name: North Sanitary (Valleycrest) Site		Meeting Type:		
Site Location: Dayton, Ohio				
Meeting Date:				
Name	Affiliation	Phone No.	E-mail Address	Project Role

SECTION 2

CQA SURVEYING

2.1 Introduction

CQA surveying of lines and grades will be conducted on a periodic basis during construction to independently verify the work of the RA Contractor's surveyor. The responsibilities of the RA Contractor's surveyor are described in Section 02100 of the specifications. The CQA Surveyor will be responsible for verifying select aspects of the RA Contractor's work and for quality assurance of the RA Contractor's surveyor's Record Drawings for inclusion in the RA Construction Report.

2.2 Surveying Personnel

CQA Surveying will be performed under the direct supervision of a registered Land Surveyor licensed in the State of Ohio. The survey crew will consist of the senior surveyor and as many surveying assistants as required to satisfactorily perform the work. Personnel will be experienced in all aspects of surveying, including detailed, accurate documentation and generation of Record Drawings.

2.3 Precision and Accuracy

The survey instruments used by the CQA Surveyor will be sufficiently precise and accurate to meet the needs of the project as defined in the specifications. Survey instruments will be capable of reading to a precision of 0.1 ft and with a setting accuracy of 10 seconds. Calibration certificates for survey instruments will be submitted on request to the CQA Certifying Engineer prior to initiating CQA surveying activities at the Site.

2.4 Scope of CQA Surveying

The scope of CQA surveying will include, but not necessarily be limited to performing quality assurance (spot-verification) of the following:

- Existing control monuments at the Site and the control monuments established by the RA Contractor's surveyor during construction;
- Horizontal and vertical coordinates of selected construction control points;
- The 100 ft x 100 ft grid pattern at the Site for verifying the RA Contractor's work at each grid point;
- Information regarding the horizontal and vertical alignment of the various components of the work (e.g., stormwater berms, trenches, piping, etc.);

- If requested by the SWPs, providing sufficient survey information of interim conditions such that material quantities can be calculated for comparison/verification of the RA Contractor's reported quantities; and
- Surveying documentation, as described in Section 2.5 of this CQA/QCP.

It will be the responsibility of the CQA Consultant and the CQA Surveyor to coordinate the CQA surveying work such that areas are promptly surveyed, interim results are reviewed, and approval is granted for the RA Contractor to proceed with subsequent work in the areas. The CQA Consultant will report nonconformances or inconsistencies to the RA Contractor promptly to minimize delays in the construction.

2.5 Documentation

Original field CQA survey notes and electronic data files will be retained by the CQA Surveyor. Interim and final survey information will be provided to the CQA Consultant in tabular or electronic format at the end of each day of surveying or at the end of a given surveying task, as requested by the CQA Consultant. The CQA Consultant may also request that the CQA Surveyor periodically verify partial/draft record drawings for a given project component.

2.6 Record Drawings

The CQA Surveyor shall verify information on the following Record Drawings, provided by the RA Contractor, for inclusion in the RA Construction Report:

- Top of final capping system;
- Top of final capping system sand drainage layer;
- Top of flexible membrane liner (FML) and associated panel locations;
- Top of geosynthetic clay liner (GCL) and associated panel locations;
- Leachate and LFG conveyance piping (including pipe alignments and elevations, type and size of pipes, cleanouts, vent locations, locations of electrical conduits, etc.);
- Pneumatic air conveyance piping and blow-off valves;
- Dual-phase extraction well locations;
- Stormwater conveyance structures, associated piping, stormwater retention pond and associated inlet locations;
- LFG flare skid;
- Leachate AST; and

- Access roads.

The final Record Drawing for a given project component shall be submitted by the RA Contractor to the CQA Certifying Engineer within 30 days of completion of that component. The CQA Surveyor shall then provide quality assurance on the Record Drawing prior to inclusion into the RA Construction Report.

SECTION 3

EROSION AND SEDIMENT CONTROL

3.1 Overview

This section of the CQA/QCP addresses the CQA program to be implemented with regard to erosion and sediment controls at the Site. The following CQA activities are discussed in this section:

- Pre-Construction Qualifying of Material Sources;
- Field Evaluation/Monitoring of Construction Techniques; and
- Deficiencies, Problems, and Repairs.

3.2 Pre-Construction Qualifying of Material Sources

Prior to construction, the RA Contractor will be required to provide the CQA Consultant with the quality control information and certification from the supplier(s) of temporary seed, permanent seed, mulch, erosion control blanket, straw wattles and silt fence, as set forth in the specifications.

The CQA Consultant will examine all of the supplier's certifications to verify that the property values listed on the certifications meet or exceed those specified in the specifications and that proper and complete documentation has been provided by the RA Contractor. The CQA Consultant will report any deviations from the above requirements to the CQA Certifying Engineer prior to installation of the materials.

3.3 Field Evaluation/Monitoring

The CQA Consultant will observe the RA Contractor's work activities and will verify that, prior to initiating work in any given area, erosion and sediment controls, as set forth in the specifications and on the Drawings have been installed. The CQA Consultant will routinely verify that the RA Contractor keeps the Site free from excessive sediment and in as neat a condition as possible. This includes the project area, haul roads, borrow areas, stockpile areas, Site entrance roads, and nearby streets. The CQA Consultant will routinely verify that the RA Contractor's erosion controls are in adequate condition. The RA Contractor shall provide the CQA Consultant copies of all shipping documentation to verify the type and quantities of materials and seed supplied. The CQA Consultant shall verify that the application rates meet specifications.

3.4 Deficiencies, Problems, and Repairs

Deficiencies, problems, or other non-conformances with the erosion and sediment control requirements set forth in the Final Design will be documented and reported to the RA Contractor and the CQA Certifying Engineer for immediate repair.

SECTION 4

CLEARING, GRUBBING, AND STRIPPING

4.1 Introduction

This section of the CQA/QCP addresses the CQA program to be implemented with regard to clearing, grubbing, and stripping of existing on-Site soil. The following CQA activities are addressed in this section:

- Field Evaluation/Monitoring of Construction Techniques; and
- Deficiencies and Problems.

4.2 Field Evaluation/Monitoring of Construction Techniques

Monitoring activities for clearing and grubbing and for the stripping and stockpiling of on-Site soils will include the following:

- Verifying and documenting that erosion and sediment controls are in place prior to the start of clearing, grubbing, and stripping and that they are maintained throughout construction;
- Verifying that trees, brush, and stumps are shredded, chipped, or otherwise size-reduced;
- Verifying that the cleared and size-reduced vegetation is hauled off Site or placed in the Designated Refuse Area as shown in the Drawings;
- Verifying that minimal disturbance to surrounding areas occurs during clearing and grubbing activities, and that any such areas are restored by the RA Contractor;
- Monitoring stripping and stockpiling of topsoil, including checking for noncomplying materials and verifying that over-stripping (i.e., excess soil removal) does not take place; and
- Monitoring the location and configuration of soil stockpile areas and verifying the separation of adjacent stockpiles of different material.

4.3 Deficiencies and Problems

Deficiencies, problems, or other non-conformances with the Final Design will be documented and reported to the RA Contractor and the CQA Certifying Engineer.

SECTION 5

EARTHWORK

5.1 Overview

This section of the CQA/QCP addresses the CQA program to be implemented with regard to earthwork, particularly as associated with placement/compaction of vegetative soil layer, common fill, sand drainage layer, FML, GCL, and engineered subbase. The following CQA activities are discussed in this section:

- Pre-Construction Qualifying of Material Sources;
- Material Conformance Testing;
- Field Evaluation/Monitoring of Construction Techniques;
- Field Testing of Work Product; and
- Deficiencies, Problems, and Repairs.

5.2 Pre-Construction Qualifying of Material Sources

The CQA Consultant or RA Contactor will obtain soil and aggregate samples from each proposed source prior to construction. Soil and aggregate samples will be shipped to the CQA Testing Laboratory. The properties of soils and aggregates will be evaluated by the CQA Testing Laboratory and results will be reviewed by the CQA Consultant and compared to the requirements of the specifications to ensure that all soil and aggregate samples meet the requirements set forth in the specifications. The laboratory test methods to be performed for pre-construction testing are summarized on **CQA/QCP Worksheet #23**.

If during Pre-Construction qualifying, a sample fails to meet the requirements of the specifications, the CQA Consultant will notify the RA Contractor and the CQA Certifying Engineer. Use of the material will not be allowed until the material is prequalified by further tests or otherwise accepted by the CQA Certifying Engineer and the RD Engineer. Additional tests, if necessary, will be performed by the CQA Testing Laboratory at the request of the CQA Certifying Engineer and at the RA Contractor's expense.

5.3 Material Conformance Testing

During construction, a conformance testing program will be implemented by the CQA Consultant to verify that the properties of all soils and aggregates meet the specified material properties. The CQA Consultant will obtain soil samples for conformance testing from either on-Site stockpiles or from trucks as they unload material in the work area. The laboratory test methods and

frequencies required for CQA conformance testing are summarized on **CQA/QCP Worksheet #23**.

If a sample fails a conformance test, then the CQA Consultant will notify the RA Contractor and use of the material represented by that sample will not be allowed. Use of the material will not be allowed until the material is re-qualified by further tests or otherwise accepted by the CQA Certifying Engineer and the RD Engineer, or the RA Contractor will use material from a different approved source.

5.4 Field Evaluation/Monitoring of Construction Techniques

The CQA Consultant will monitor and document at a minimum the following earthwork activities:

- Verifying and documenting that erosion and sediment controls are in-place prior to the start of any earthwork activity and that they are maintained throughout construction;
- Verification of the existing engineered subbase thicknesses prior to installation of the FML. Engineered subbase thickness shall be verified in accordance with Paragraph 3.05 of Section 02200 of specifications and OAC 3745-27-08(D)(21);
- Monitoring the thickness of loose and compacted lifts;
- Monitoring number of passes for compacting soils or aggregates;
- Verifying that the surface of a previously placed lift is properly scarified and prepared prior to placement of the subsequent lift;
- Documenting the construction equipment used to place and compact the material;
- Observing compaction and heavy hauling equipment on the construction surface to detect inadequate compaction (i.e., penetration, pumping, cracking, etc.);
- Monitoring the construction of pipe gallery trenches and stormwater conveyance structures;
- Monitoring road subgrade prior to placement of road base aggregate placement to document the existence of smooth and firm ground without excessively soft, loose, or unstable areas;
- Verifying that the surface of the vegetative soil layer is properly prepared for seeding, and that seeding takes place within the specified time limits.

5.5 Field Testing and Verification of Work Product

5.5.1 Routine Field Testing

Field testing (i.e., density and moisture content testing) of placed/compacted soils and aggregates will be performed by the CQA Consultant during construction to evaluate the RA Contractor's work product with respect to the requirements of the specifications. The test methods and frequencies for CQA field testing are summarized on **CQA/QCP Worksheet #23**. Sampling and test locations will be selected by the CQA Consultant.

Moisture/density testing will be performed using a nuclear gauge (in accordance with ASTM D 6938). The CQA Consultant will also routinely verify calibration of the nuclear gauge throughout construction using methods such as Drive Cylinder (ASTM D 2937) density testing (**Worksheet #22**). One drive cylinder sample shall be taken for every 30 nuclear gauge tests.

In addition to field testing, the CQA Consultant shall verify the thickness of engineered subbase in accordance with Paragraph 3.05 of Section 02200 of the specifications. For areas where the engineered subbase thickness is less than 6 inches, the RA Contractor shall place additional engineered subbase.

5.5.2 Special Testing

A special testing frequency will be used at the discretion of the CQA Certifying Engineer or the CQA Consultant when visual observations of construction performance indicate a potential problem. Additional testing for suspected areas will be considered when:

- The compactor rollers slip during rolling operations;
- The lift thickness is greater than specified;
- The material is at improper and/or highly variable moisture content;
- Fewer than the specified number of roller passes are made;
- Dirt-clogged rollers are used to compact the material;
- The degree of compaction is doubtful; or
- As directed by the CQA Certifying Engineer.

During construction, the frequency of testing may also be increased in the following situations:

- Adverse weather conditions;
- Breakdown of equipment;
- At the start and finish of grading; or

- If the material fails to meet specification requirements.

5.5.3 Perforations

All holes created in the ground by the nuclear gauge probe will be backfilled by the CQA Consultant with bentonite powder and compacted in-place by tamping in 3-inch lifts. Bentonite will be provided by the RA Contractor.

5.6 Deficiencies, Problems, and Repairs

If a deficiency or noncompliance is discovered, then the CQA Consultant will promptly evaluate the extent and nature of the defect. The extent of the deficient area will be evaluated by additional tests, observations, a review of records, or other means deemed appropriate (e.g., proof rolling by the RA Contractor).

After defining the extent and nature of a defect, the CQA Consultant will notify the RA Contractor and the CQA Certifying Engineer to schedule appropriate retests after the work deficiency is corrected.

The RA Contractor will correct the deficiency to the satisfaction of the CQA Consultant. If a project specification criterion cannot be met, or unusual weather conditions hinder work, then the CQA Consultant will develop and present to the CQA Certifying Engineer suggested alternative solutions for approval. All retests recommended by the CQA Consultant must verify that the deficiency has been corrected before any additional work is performed by the RA Contractor in the area of the deficiency.

CQA/QCP Worksheet #22
Field Equipment Calibration

Field Equipment	Activity	SOP Reference	Title or position of responsible person	Frequency	Acceptance Criteria	Corrective Action
Nuclear Density Gauge	Calibration	ASTM D6938	CQA Technician	Daily	Verify with Drive Cylinder Testing – 1 Drive Cylinder per 30 Nuclear Gauge Tests	Recalibrate Nuclear Density Gauge and replace gauge as necessary

CQA/QCP Worksheet #23
Testing Methods

Method¹	Title	Data Type	Matrix	Equipment Type
ASTM D422	Standard Test Method for Particle Size Analysis of Soils	Geotechnical Characterization	Soil	Geotechnical Laboratory Equipment
ASTM C136	Standard Test Method for Sieve analysis of Fine and Coarse Aggregates			
ASTM D4318	Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils			
ASTM D2487	Standard Practice for Classification of Soils for Engineering purposes (Unified Soil Classification System)			
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort			
ASTM D2216	Standard Test Methods for Laboratory Determination of Water Content of Soil and Rock by Mass			
ASTM D5084	Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter			
ASTM D2488	Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)			
ASTM D2974	Standard Test Methods for Moisture, Ash, and Organic matter of Peat and Other Organic Soils			
ASTM D4972	Standard Test Method for pH of Soils			
ASTM D4373	Standard Test Method for Rapid Determination of Carbonate Content of Soils			

¹ Testing methods that are current at the time of construction shall be used.

CQA/QCP Worksheet #23
Testing Methods, continued

Method	Title	Data Type	Matrix	Equipment Type
ASTM D6938	Standard Test Method for In-place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)	Field Verification Testing	Subbase for Structures	Nuclear Density Gauge
ASTM D2937	Standard Test Method for Density of Soil in Place by the Drive Cylinder Method			Drive Cylinder
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete	Concrete Verification Testing	Concrete	Field Equipment
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method			
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens			Laboratory Equipment
Testing Methods for the FML and GCL will be developed during the Pre-Final RD.				

SECTION 6

LEACHATE AND LFG MANAGEMENT SYSTEMS (DUAL PHASE EXTRACTION WELLS)

6.1 Overview

This section of the CQA/QCP addresses the CQA program to be implemented with regard to installation of the leachate and LFG management systems. Items associated with the leachate and LFG management systems include: (i) dual-phase extraction wells; (ii) leachate and LFG conveyance piping; (iii) trench backfill; (iv) pipe bedding; (v) compressed air piping; (vi) lift stations and AST, pumps, piping, fittings, and associated accessories; (vii) forcemain; (viii) cleanout risers; and (ix) extraction pumps.

The following CQA activities are discussed in this section:

- Pre-Construction Qualifying of Material Sources;
- Material Conformance Testing;
- Field Evaluation/Monitoring of Construction Techniques;
- Field Testing of Work Product; and
- Deficiencies, Problems, and Repairs.

6.2 Pre-construction Qualifying of Material Sources

6.2.1 HDPE Pipe

The leachate and LFG management systems will include perforated and solid-wall HDPE pipes for both dual-phase extraction well construction and conveyance piping. The pipes must be pre-qualified as described below. Prior to the shipment of the HDPE pipes and fittings the RA Contractor will be required to provide the CQA Consultant with the quality control information and certifications from the HDPE pipe manufacturer as set forth in Section 04100 of the specifications.

The CQA Consultant will examine all of the HDPE pipe manufacturer's certifications to verify that the property values listed on the certifications meet or exceed the specifications, and that proper and complete documentation has been provided by the RA Contractor for all HDPE pipe, fittings, and pipe-accessories to be used at the Site. The CQA Consultant will report any deviations from the above requirements to the RA Contractor prior to approving installation of the pipe.

The CQA Consultant will verify that the following information is printed at frequent intervals on, or otherwise clearly provided for the HDPE pipe used on the project:

- Name and/or trademark of the pipe manufacturer;
- Nominal pipe size, wall thickness, and standard dimension ratio (SDR);
- Manufacturing standard references; and
- A production code from which the date and place of manufacture can be determined.

If, during pre-construction qualifying, any of the HDPE piping fails to meet the specifications, the CQA Consultant will notify the RA Contractor. Use of the material will not be allowed until the material is prequalified by further tests or otherwise accepted by the Engineer.

6.2.2 PVC Pipe

PVC pipe must be prequalified as described below. Prior to the shipment of the pipes and fittings, the RA Contractor will be required to provide the CQA Consultant with the quality control information and certifications from the manufacturers as set forth in Section 04090 of the specifications.

The CQA Consultant will examine all of the manufacturer's certifications to verify that the property values listed on the certifications meet or exceed the specifications, and that proper and complete documentation has been provided by the RA Contractor for all pipe, fittings, and pipe-accessories to be used at the Site. The CQA Consultant will report any deviations from the above requirements to the RA Contractor prior to approving installation of the pipe.

The CQA Consultant will verify that the following information is printed at frequent intervals on, or otherwise clearly provided for the pipe used on the project:

- Name and/or trademark of the pipe manufacturer;
- Nominal pipe size and wall thickness and/or schedule designation;
- Manufacturing standard reference; and
- A production code from which the date and place of manufacture can be determined.

If, during pre-construction qualifying, any of the piping fails to meet the specifications, the CQA Consultant will notify the RA Contractor. Use of the material will not be allowed until the material is prequalified by further tests or otherwise accepted by the RD Engineer.

6.2.3 Dual-Phase Extraction Well/Trench Backfill and Pipe Bedding

The CQA Consultant will obtain samples from each proposed source prior to construction. Samples will be shipped to the CQA Testing Laboratory by the RA Contractor or CQA Consultant. The properties of trench backfill and pipe bedding will be evaluated by the CQA Testing Laboratory, and results will be reviewed by the CQA Consultant and compared to the requirements of the specifications to ensure that all samples meet the requirements set forth in the specifications. The laboratory test methods to be performed for pre-construction testing for trench backfill and pipe bedding are summarized on **CQA/QCP Worksheet #23**.

If, during pre-construction qualifying, a sample fails to meet the requirements of the specifications, the CQA Consultant will notify the RA Contractor and the CQA Certifying Engineer. Use of the material will not be allowed until the material is prequalified by further tests or otherwise accepted by the CQA Certifying Engineer and the RD Engineer. Additional tests, if necessary, will be performed by the CQA Consultant at the request of the CQA Certifying Engineer and at the RA Contractor's expense.

6.2.4 Lift Stations, AST, Tanks, Pumps, Piping, Fittings, and Accessories

The leachate AST, pumps, piping, fittings, and accessories will be pre-qualified by the CQA Consultant by the data sheets provided by the RA Contractor as part of the submittal process in accordance with Division 4 through 5 of the specifications. The products will be verified upon delivery at the field. The RA Contractor shall provide copies of all shipping information to the CQA Consultant documenting the shipped materials/equipment (quantities, model types, etc.).

6.3 Material Conformance Testing

A conformance testing program will be implemented by the CQA Consultant during construction to verify that the properties of all soils and aggregates meet the specified material properties. The CQA Consultant will obtain soil samples for conformance testing from either on-Site stockpiles or from trucks as they unload material in the work area. The laboratory test methods and frequencies required for CQA conformance testing are summarized on **CQA/QCP Worksheet #23**.

If a sample fails a conformance test, then the CQA Consultant will notify the RA Contractor and use of the material represented by that sample will not be allowed. Use of the material will not be allowed until the material is re-qualified by further tests or otherwise accepted by the CQA Certifying Engineer and the RD Engineer, or the RA Contractor will use material from a different approved source.

Material conformance testing for the remaining components of the leachate and LFG management systems will not be required unless aspects of the pre-qualifying information are deficient or suspect, or if requested by the CQA Certifying Engineer. If deemed necessary by the CQA

Certifying Engineer, the CQA Consultant will deliver a sample to the appropriate testing laboratory for testing to evaluate whether the products in suspect meet the required properties of the specifications. The conformance test requirements will be determined at that time by the Engineer. The cost of additional testing will be borne by the RA Contractor.

6.4 Field Evaluation/Monitoring of Construction Techniques

The CQA Consultant will monitor and document at a minimum the following activities:

- Dual-phase extraction wells are drilled and installed at the locations. A dual-phase well extraction installation table providing locations, depths, lengths of perforated and solid pipe will be developed as part of the Pre-Final RD;
- The perforated pipe has the proper amount and spacing of perforations, and that the perforations are oriented properly after the pipe is installed;
- Handling of the pipe is conducted in such a manner that the pipe is not damaged;
- Testing of the pipes are conducted in accordance with the specifications;
- Ropes, fabric, or rubber-protected slings and straps are used when handling pipe;
- Pipe or fittings are not dropped onto rocky or unprepared ground or into trenches or dragged over sharp objects;
- Trench backfill or pipe bedding are tamped in place and have intimate contact with the pipes;
- Separator fabric is overlapped to appropriate dimensions and heat tacked as shown in the Drawings;
- Welding is performed in accordance with the specifications;
- Pipe sections are properly joined using procedures recommended by the manufacturer and/or allowed for in the specifications;
- Placement of backfill over the pipe is conducted in lifts meeting the requirements of the specifications, and in a manner that will not damage the pipe;
- Condition of pumps, lift stations and above ground tanks are checked in accordance with the specifications that they are in working condition and there are no leaks in mechanical and welded connections;

- Concrete testing is performed by the RA Contractor in accordance with the specifications; and
- Seepage collar has appropriate dimensions.

6.5 Field Testing of Work Products

Field hydrostatic or air pressure testing of all solid-walled pipes will be required to evaluate the quality of the pipe welds (i.e., ensure a proper air/water-tight seal) for all conveyance piping (leachate, LFG, and pneumatic). For all solid-walled pressure pipes, the CQA Consultant will verify that the RA Contractor has performed the applicable pre-testing procedures described by the manufacturer prior to initiating any hydrostatic or low-pressure air testing of pipes. The CQA Consultant will then monitor the RA Contractor's activities during pressure testing of pipes. The CQA Consultant will either record the test results or will observe the RA Contractor recording the results and review the results upon submittal by the RA Contractor.

6.6 Deficiencies, Problems, and Repairs

The CQA Consultant will report any deficiencies or noncompliance in the leachate and LFG management system construction to the RA Contractor. The extent of deficiencies will be evaluated by observations, review of records, or other means deemed appropriate by the CQA Certifying Engineer and/or the RD Engineer.

The RA Contractor will correct the deficiency to the satisfaction of the CQA Consultant. If a project specification criterion cannot be met, or unusual weather conditions hinder work, then the CQA Consultant will develop and present to the RD Engineer suggested alternative solutions for approval. All retests or subsequent re-evaluations recommended by the CQA Consultant must verify that the deficiency has been corrected before any additional work is performed by the RA Contractor in the area of the deficiency.

SECTION 7

LANDFILL GAS TREATMENT

A LFG utility (i.e., candlestick) flare skid will be used for treatment and destruction of the collected LFG. The specifications and CQA requirements will be developed as part of the Pre-Final RD.

SECTION 8

LANDFILL CAPPING SYSTEM

8.1 GCL and FML Installation

The following activities will be performed for the FML or GCL in landfill capping system construction. Final specifications for these layers will be developed during the Pre-Final RD.

- Visually inspect the FML and GCL for damage during shipping.
- Document that the FML and GCL manufacturer and type meets the project specifications. The manufacturer's written certifications and warranty will be required prior to the CQA Certifying Engineer's acceptance of the material.
- The geosynthetic manufacturer will test samples of the FML and GCL to ensure that the physical characteristics meet the project specifications. Coupon samples may be cut from geosynthetic components for additional testing if so desired by the CQA Consultant.
- Document that the surface of the material the FML and GCL is to be placed on is relatively smooth and free from undesirable objects.
- Verify that the FML and GCL has been securely anchored at the top of slopes and unrolled in a controlled manner down the slope.
- Monitor installed FML and GCL to prevent UV degradation and excessive exposure to heat, cold, and dirt.
- Document that the FML and GCL panels are lapped and seamed according to the plans and manufacturer's recommendations. FML panels will be welded or fused together. GCL panels shall be sealed per manufacturer recommendations.
- Document that the FML and GCL have been visually inspected for flaws, rips, tears, punctures, or other damaged areas.

Document that all failed or flawed areas have been repaired in accordance with the manufacturer's recommended method.

8.2 Sand Drainage Layer

A 1-foot layer sand drainage layer will be constructed above the GCL, as specified in the description of the approved final capping system as shown of the Final RD Drawings. Final specifications for the sand drainage layer will be developed during the Pre-Final RD.

The CQA Consultant will perform the following activities to ensure that the initial lift is constructed according to design specifications and in a manner that preserves the integrity of the underlying FML and GCL as discussed below:

1. A 1-foot minimum initial lift of sand drainage material shall be placed in order to protect the FML from damage caused by equipment traffic. All equipment used to place the layer shall not be driven directly on the FML.
2. This initial lift of sand drainage layer shall be monitored and tested to determine its suitability to be placed directly on the FML in accordance with the specifications.
3. Stones that exceed the maximum specified grain size will be removed from the sand drainage layer prior to placement.
4. The material shall be placed in a manner that minimizes the formation of wrinkles in the FML.
5. Sand drainage layer shall be placed so as to not damage the underlying FML or cause slippage between the FML and the GCL.

The limits of fill shall be measured by surveying techniques to document that the total thickness of sand drainage layer above the FML meets the required 1-foot thickness.

8.3 Protective Soil Layers

A 1-foot layer of protective soil will be constructed above the sand drainage layer, as specified in the description of the approved final capping system as shown of the Final RD Drawings. The 1-foot layer consists of the following components: (1) 6-inch fill and (2) 6-inch vegetative layers. Final specifications for these layers will be developed during the Pre-Final RD.

SECTION 9

STORMWATER MANAGEMENT SYSTEM

A description of the stormwater management plan is contained in the Preliminary RD. During construction, observations will be made of the stormwater-related construction activities including flow control structures, pipe installation, excavation, and backfill placement. Specifically, the following shall be performed:

1. Visually inspect all pipe, pipe bedding, trench backfill, concrete and other miscellaneous materials for compliance with the specifications;
2. Visually inspect the construction of the basin, basin inlet, ditches, and berms; and
3. Monitor, measure, and document that the construction methods meet the design specifications.

Final specifications for the stormwater management system components will be provided in the Pre-Final RD.

SECTION 10

GROUNDWATER WELL AND LANDFILL GAS PROBE INSTALLATION

Additional groundwater monitoring wells and LFG probes will be installed as part of the RA construction. The groundwater monitoring wells and LFG probes shall be installed under the supervision of an experienced geologist or engineer who shall work in conjunction with the CQA Consultant.

A complete description of the groundwater and LFG monitoring systems is presented in the Preliminary RD. The proposed groundwater monitoring well and LFG probes locations will be shown on the Pre-Final RD. The LFG monitoring system consists of a series of LFG probes located around the Site perimeter. The LFG probes shall be installed according to the design details. The LFG probe installation shall be monitored by the CQA Consultant. The responsibilities of the CQA Consultant or their designee are presented below:

1. Monitor and document the installation of the groundwater monitoring wells and LFG monitoring probes for the RD/RA to ensure that the monitoring devices are constructed in accordance with the design.
2. Verify that materials and procedures conform with the construction plans and specifications. Soils will be logged on a continuous basis from the ground surface to the bottom of the wells.
3. Verify that casing and screens are decontaminated prior to construction of the monitoring wells. The drilling equipment, augers, and drill rigs will also be free of contaminants prior to well construction.
4. Verify that materials are ASTM grade tested and approved. Well and probe construction will be documented by boring logs, on-Site monitoring, and as-built diagrams.

SECTION 11

CQA/QCP DOCUMENTATION

11.1 Introduction

An effective CQA/QCP depends largely on recognition of all construction activities that should be monitored, and on assigning responsibilities for the monitoring of each activity. This is most effectively accomplished and verified by the documentation of CQA activities. The CQA Consultant will document that all quality assurance requirements have been addressed and satisfied. The project documents and records are listed in **CQA/QCP Worksheet #29**.

The CQA Consultant will provide the SWPs with signed descriptive remarks, data sheets, and logs to verify that all monitoring activities have been carried out. The CQA Consultant will maintain at the Site a complete file of the Final Design (specifications, Drawings, etc.), the CQA/QCP test procedures, daily reports, testing logs, and other pertinent forms and documents. Blank forms to be used for CQA documentation will be prepared prior to construction and kept in a file at the Site so that they may be readily photocopied as needed during the project.

11.2 Daily Record-Keeping

11.2.1 Overview

Daily records will be completed in the field, documenting the CQA activities. The forms to be completed that pertain to each of these categories of records are discussed below. The discussion includes the person(s) responsible for completing each form, and form submittal timeframes.

11.2.2 Project Administration Records

Most project administration records are completed daily by the CQA Consultant and submitted weekly to the CQA Certifying Engineer. These forms are briefly described below.

Daily Field Report

The Daily Field Report will be prepared by the CQA Consultant and submitted weekly to the CQA Certifying Engineer. The Daily Field Report will include information such as the following:

- Date, project name, location, and other identification;
- A narrative of the events and activities, including meetings and observations which occurred during a given day;
- A summary of the locations where construction occurred during the day;

- Weather conditions;
- Name of parties to any discussions;
- Relevant subject matter or issues;
- Activities planned and performed;
- Constraints or suggestions;
- Scheduling information;
- Photographic documentation of construction activities; and
- The signature of the CQA Consultant who authored the report.

Personnel Log

The Personnel Log will be used by the RA Contractor to document dates when key personnel are on Site. This log will provide a summary of the RA Contractor, the SWPs, surveyors, CQA Certifying Engineer, and the CQA Consultant involved in the project, describes their position, and lists the time periods of involvement with Site work. This log will be available for review at the Site and will be issued as part of the RA Construction Report.

11.2.3 CQA Test Records

Records for all soil and aggregate CQA testing will be kept on Site by the CQA Consultant. The information will be recorded as testing is done in the field or as results are received from the laboratory. These records will be issued as part of the RA Construction Report.

11.2.4 CQA Inspection Records

All CQA inspection records will be kept on Site by the CQA Consultant. The information will be recorded as inspections are done in the field. These records will be issued as part of the RA Construction Report.

11.2.5 Record Drawings

CQA Surveyor will compare the as-built information supplied by the RA Contractor to the Final Design during construction. The CQA Consultant and/or the CQA Certifying Engineer will verify reasonable agreement between the RA Contractor's and CQA Surveyor's data. The CQA Surveyor's record drawings will be included in the RA Construction Report. The RA Contractor's as-built drawings will be kept on file and will be included as an appendix to the RA Construction Report only to the extent required to bring additional clarity or information to the record drawings.

11.3 Clarifications/Changes to the Drawings, Specifications, or CQA/QCP

Clarifications and/or changes to the Drawings, specifications, and/or CQA/QCP may be necessary during construction. In such cases, the CQA Consultant will notify the CQA Certifying Engineer, who will in turn notify the RD Engineer, and if necessary, the appropriate regulatory personnel. In most cases, the CQA Consultant will be required to submit written information describing the proposed change and rationale for the request. The CQA Certifying Engineer will submit back to the CQA Consultant all correspondence to and from the RD Engineer (and, when necessary, regulatory personnel) regarding each proposed clarification or change, providing the requested clarifying information, and/or indicating acceptance or rejection of proposed change.

Major design and/or specification changes will be made only with the written agreement of the RD Engineer, the SWPs, and approval by the appropriate regulatory agency, and will take the form of a Field Clarification, an Order for Minor Change, a Construction Change Directive, or a Change Order. A log of all changes will be kept by the CQA Consultant, and copies will be kept on file at the Site. Copies of all changes will be included as an appendix to the RA Construction Report.

11.4 Monthly Progress Reports

Monthly Progress Reports (MPR) will continue to be submitted to the USEPA per the CD. RA construction-related content in the MPRs will be prepared by the CQA Site Manager and the RA Contractor and reviewed by the CQA Certifying Engineer. The MPR will include information such as the following:

- Actions taken to meet the CD;
- Results of sampling/testing/inspections;
- Deliverables completed;
- Percentage complete and status of schedule;
- Unresolved delays and efforts to mitigate;
- Modifications to plans or schedules;
- Difficulties encountered and corrective actions to be taken;
- Activities in progress;
- Activities planned of the next six weeks;
- Changes in key personnel; and
- Community relations plan support activities.

11.5 Signatures and RA Construction Report

After the SWPs conclude that the RA has been fully performed and the PSs have been attained, the SWPs shall schedule and conduct a pre-certification inspection to be attended by the SWPs and the USEPA. If, after the pre-certification inspection, the SWPs still believe that the RA has been fully performed and the PSs have been attained, the SWPs shall submit a written report (RA Construction Report) requesting certification to the USEPA for approval, pursuant to Section 3745-27-08 (Ohio EPA Approval of Plans and Other Submissions) within thirty (30) days of the inspection.

The CQA Certifying Engineer will submit the RA Construction Report to the SWPs upon completion of the work. This report will certify that the work has been performed in compliance with the Final Design (Drawings, specifications, and CQA/QCP, except for changes that are properly authorized and implemented), and that the summary document provides the necessary supporting information.

At a minimum, this report will include: (a) a narrative of the construction activities; (b) CQA observation logs and CQA testing results; (c) a discussion of changes from design and material specifications; and (d) as-built drawings signed and stamped by the CQA Certifying Engineer.

Additionally, in the report, the CQA Certifying Engineer (a Professional Engineer registered in the State of Ohio) and the SWP Project Coordinator shall state that the Remedial Action has been completed in full satisfaction of the requirements of the CD. The RA Construction Report shall contain the following statement, signed by a responsible corporate official of the SWPs or the SWP Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11.6 Storage of Records

CQA surveying of lines and grades will be conducted on a periodic basis during construction to independently verify the work of the RA Contractor's surveyor. The responsibilities of the RA Contractor's surveyor are described in Section 02100 of the specifications. The CQA Surveyor will be responsible for verifying select aspects of the RA Contractor's work and for quality assurance of the RA Contractor's surveyor's Record Drawings for inclusion in the RA Construction Report.

CQA Worksheet #29
Project Documents and Records

Record	Generation	Verification	Storage location/archival
Daily Field Report	CQA Technician(s)	CQA Site Manager	On Site until project end, archive location for 10 years after certification of completion
Personnel Log	CQA Site Manager	CQA Certifying Engineer	On Site until project end, archive location for 10 years after certification of completion
CQA Inspection Records	CQA Technician(s) CQA Manager	CQA Certifying Engineer	On Site until project end, archive location for 10 years after certification of completion
CQA Testing Records	CQA Technician(s) CQA Manager	CQA Certifying Engineer	On Site until project end, archive location for 10 years after certification of completion
Record Drawings	CQA Surveyor	CQA Certifying Engineer	On Site until project end, archive location for 10 years after certification of completion
Clarification/Changes to Drawings, Specs or CQA/QCP	CQA Consultant	CQA Certifying Engineer/Regulatory Personnel	On Site until project end, archive location for 10 years after certification of completion
Monthly Progress Reports	Reports CQA Site Manager, Project Manager	CQA Certifying Engineer	On Site and distribution to involved parties, archive location for 10 years after certification of completion
RA Construction Report	CQA Site Manager	CQA Certifying Engineer	Project file and distribution to involved parties, archive location for 10 years after certification of completion

APPENDIX C

FEBRUARY 4, 2021 EMAIL FROM CITY OF DAYTON PUBLICLY OWNED TREATMENT WORKS

From: [Clark, Chris](#)
To: [Michael H. Samples \(Mikes@demaximis.com\)](#); [John Buyers](#)
Cc: [Simmons, Michele](#); [Preyor, Inez](#); [Mohr, Andrea](#)
Subject: Valley Crest Landfill
Date: Thursday, February 4, 2021 7:36:46 AM
Attachments: [image001.png](#)
[Local Limits Final 2019.pdf](#)
[USEPA PFAS Strategy for NPDES Permit Holders.pdf](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you have any suspicion, please confirm with the sender verbally that this email is authentic.

Mr. Buyers and Mr. Samples.... This email is a follow up to your recent conversations with Michele Simmons with the City's Environmental Management Division regarding the status of the City's Industrial Local Limits. Before addressing the status of the Local Limits and Prohibited Discharges, I would like to discuss Valley Crest's continued interest in discharging to the City's Sanitary Sewer. I will advise you before expending additional efforts in your evaluations, that the City of Dayton has decided that it will not accept leachate waste from the Valley Crest Landfill site nor any other new Landfill Leachate Sources even if such waste has been pretreated. The City is concerned with Unregulated Emerging Contaminants that could otherwise cause to be introduced into the POTW any pollutant or wastewater that causes pass through or interference; or could cause contaminant buildup in residual biosolids; or could result in the Water Reclamation Facility to fail a toxicity test. I would point you to the attached bulletin from the USEPA regarding the development of an interim strategy PFAS contaminants.

The latest Local Limits can be accessed at the City of Dayton's website <https://www.daytonohio.gov/DocumentCenter/View/3327/City-of-Dayton-Industrial-Local-Limits?bidId=> A copy of these limits are also attached with this correspondence. The Local Limits are subject to be amended in 2021 after we receive the renewed Ohio EPA NPDES permit.

I would also advise that all dischargers are subject to the requirements of the Sewer Use Ordinance Prohibitions Chapter 52, Section 52.03 which can be accessed by the following link: [CHAPTER 52. - SEWER CONSTRUCTION AND USE; WASTEWATER DISCHARGES | Code of Ordinances | Dayton, OH | Municode Library](#)

If you should have any questions please contact me at your convenience.

Chris Clark
Division Manager
Department of Water
Division of Water Reclamation | City of Dayton
2800 Guthrie Road | Dayton, Ohio 45417
Office 937.333.1834 | Fax 937.333.1826

APPENDIX D

**INSTITUTIONAL CONTROLS IMPLEMENTATION
AND ASSURANCE PLAN**

INSTITUTIONAL CONTROLS IMPLEMENTATION AND ASSURANCE PLAN

North Sanitary Landfill Dayton, Ohio

Submitted to

USEPA



Submitted by

Geosyntec 
consultants

engineers | scientists | innovators

931 Chatham Lane, Suite 103
Columbus, Ohio 43221

Project Number: TR0881

April 2021

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Appendix G	2019 Order Appointing Receiver for Keystone
Appendix H	Draft Consent Agreement

List of Acronyms and Abbreviations

AOC	Administrative Order on Consent
CD	Consent Decree
City	City of Dayton
cy	cubic yards
EC	environmental covenant
IC	Institutional Control
ICIAP	Institutional Controls Implementation and Assurance Plan
KAP	Keystone Affected Property
Keystone	The Keystone Gravel Company
LFG	landfill gas
MCR	Montgomery County Recorder
MPR	monthly progress report
NAPL	non-aqueous phase liquid
O&M	operation and maintenance
ORC	Ohio Revised Code
Ohio EPA	Ohio Environmental Protection Agency
OPBWA	Off-Property Buried Waste Area
PHDMC	Public Health Dayton & Montgomery County
PRPs	potentially responsible parties
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROW	right-of-way
Site	North Sanitary (a.k.a., Valleycrest) Landfill
SOW	Statement of Work
SWPs	Settling Work Parties
TCLP	toxicity characteristic leaching procedure

List of Acronyms and Abbreviations (cont'd)

USA	United States of America
USEPA	United States Environmental Protection Agency
VLSG	Valleycrest Landfill Site Group

1.0 Introduction

The North Sanitary (a.k.a., Valleycrest) Landfill (Site) is located at 950 Brandt Pike in the City of Dayton (City), in Montgomery County, Ohio. The Site location is shown on **Figure 1**.

The United States of America (USA) and Settling Work Parties (SWPs) entered into a Consent Decree (CD) on October 30, 2018 (Civil Action No. 3:18-cv-00054) under which the SWPs will perform Remedial Design and Remedial Action (RD/RA) at the Site under oversight by the United States Environmental Protection Agency (USEPA) Region 5. The USEPA's decision on the response actions to be implemented at the Site is embodied in the August 16, 2013 Record of Decision (ROD). CD Appendix B (Statement of Work [SOW] for RD/RA) requires, in Section 6.7e, the preparation of an Institutional Controls Implementation and Assurance Plan (ICIAP).

The purpose of the ICIAP is to secure, safeguard, and restrict access to the Site and ensure long-term care of the Site and protectiveness of the remedy by identifying the details of how and by whom the institutional controls (ICs) should be implemented, maintained, enforced, modified, and terminated (if applicable).

CD Section VIII (Property Requirements) provides specific requirements for the Site. The main type of IC to be implemented for the Site is proprietary control through environmental covenant (EC).

The SWPs are responsible for implementation of this ICIAP under USEPA Region 5 oversight. This ICIAP was prepared by Geosyntec Consultants, Incorporated on behalf of the SWPs and is organized per Section C (Recommended ICIAP Components) of the USEPA's December 2012 "Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites" as follows:

Section 1: Introduction

Section 2: Site Details

Section 3: Key Elements for All Planned/Implemented ICs

Section 4: IC Maintenance Elements

Section 5: IC Enforcement Elements

Section 6: IC Modification and Termination Elements

Section 7: Appendices

CD Section IV (Definitions) provides the following definitions of terminology used in this ICIAP:

- a. *"Affected Property" shall mean all real property at the Site (including, but not limited to, the Keystone Affected Property) and any other real property where EPA determines, at any time, that implementation of the Remedial Action requires (i) access to the real*

property, (ii) land, water, or other resource use restrictions, and/or (iii) Institutional Controls.

- k. *“Institutional Controls” or “ICs” shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, or other resource use to minimize the potential for human exposure to Waste Material at or in connection with the Site; (b) limit land, water, or other resource use to implement, ensure non-interference with, or ensure the protectiveness of the RA; and/or (c) provide information intended to modify or guide human behavior at or in connection with the Site.*
- p. *“Keystone Affected Property” shall refer to the collection of parcels owned by The Keystone Gravel Company at the Site, as described in Paragraph 20.a.*
- bb. *“Proprietary Controls” shall mean easements or covenants running with the land that (a) limit land, water, or other resource use and/or provide access rights and (b) are created pursuant to common law or statutory law by an instrument that is recorded in the appropriate land records office.*
- hh. *“Settling Parties” shall mean Settling Work Parties (identified in Appendix D) and Other Settling Parties (identified in Appendix E) that have signed this Consent Decree. Where distinctions need to be made between the two groups of Settling Parties, the term “Settling Work Parties” and “Other Settling Parties” shall be used. Where referring to an individual member of the group of “Settling Parties,” the singular term “Settling Party” shall be used.*
- ii. *“Settling Work Parties” shall mean the parties identified in Appendix D. Where referring to an individual member of the group of “Settling Work Parties,” the singular term “Settling Work Party” shall be used.*
- jj. *“Site” shall mean the North Sanitary (aka “Valleycrest”) Landfill Superfund Site, encompassing approximately 102 acres, located on both the east and west sides of Valleycrest Drive north of the intersection of Valleycrest Drive and Valley Street in the City of Dayton, Montgomery County, Ohio, and depicted generally on the map attached as Appendix C;*
- nn. *“Transfer” shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.*

2.0 Site Details

2.1 Site Description

The Comprehensive Environmental Response, Compensation, and Liability Information System identification for the Site is OHD980611875.

The Site is located at 950 Brandt Pike in the City of Dayton, in Montgomery County, Ohio. The Affected Properties comprising the Site include the Keystone Affected Property (KAP), Affected Property owned by Settling Parties, and Affected Property Owned by Non-Settling Parties.

The approximately 102-acre KAP is owned by The Keystone Gravel Company (Keystone) and consists of the following 14 parcels and 16 corresponding City of Dayton lots:

Parcel Number	Corresponding Lot Number(s)
R72-16703-0016	74599
R72-16703-0017	74603
R72-16703-0018	74600
R72-16703-0021	74604
R72-16704-0004	74624
R72-16704-0005	74618, 74620, 74622
R72-16704-0011	74619
R72-16704-0012	74621
R72-16704-0014	74623
R72-16704-0049	74634
R72-16704-0051	74633
R72-16704-0055	74635
R72-16704-0064	74636
R72-16714-0023	79327

Figure 2 (Site Layout) delineates the KAP.

The Site also includes, following RA construction completion (as shown on **Figure 2**):

- All, or a portion of, Affected Property Owned by Settling Parties (City Lot 74626; owner has not yet executed the CD) - 3.1 acres
- Affected Property Owned by Non-Settling Parties (City Lot 74625) - 1.03 acres

The Site is bifurcated, roughly in half, by Valleycrest Drive. At the time of the Remedial Investigation/Feasibility Study (RI/FS), the Site consisted of five disposal areas (Disposal Areas 1, 2, 3, 4, and 5) totaling approximately 74.4 acres as shown on **Figure 2**. For the purposes of the RI/FS, the Site was separated into two sections based on the types of material disposed:

- The eastern two-thirds of the Site (referred to as the Eastern Two Thirds), including Disposal Areas 1, 2, and 5, received mixed household refuse/municipal and industrial wastes.
- The western third of the Site (referred to as the Western Third), including Disposal Areas 3 and 4, received foundry sand, fly ash, baghouse dust, and plaster casting cores, while the northern portion of Disposal Area 3 received a small amount of mixed municipal and/or industrial waste.

During remedy construction, the contents of Disposal Area 4 will be relocated and consolidated into the other disposal areas such that, following remedy construction, the Site will include approximately 69 acres of landfilled area containing an estimated 2,464,997 cubic yards (cy) of waste permanently capped in place as shown on **Figure 2**.

A common law EC was established for the KAP on September 26, 2006 between Keystone (as owner of the KAP) and *de maximis, inc.* (as owner of Lot 74625 adjacent to the KAP) and was filed with the Montgomery County Recorder (MCR) on October 3, 2006 that prohibits installation of water wells and residential activities on the KAP. A copy of the September 26, 2006 EC is provided in Appendix A of this ICIAP.

A statutory law EC was established for the KAP on July 18, 2007 (Original EC, copy provided in Appendix B) pursuant to the laws of the State of Ohio that restricts land use and access to groundwater and allows for future development of the Site for recreational, commercial, or light industrial uses only, consistent with the Valleycrest Reuse Framework. Pursuant to the CD, the Original EC will be amended (Amended EC) to reflect the ROD remedy, which includes restrictive covenants to restrict Site use and prevent interference with the remedy.

ECs will also be established for Affected Property Owned by Settling Parties (City Lot 74626; owner has not yet executed the CD) and, if possible using best efforts by the SWPs, Affected Property Owned by Non-Settling Parties (City Lot 74625).

2.2 Brief Site History

2.2.1 Previous Site Uses

Keystone operated nearly all of the KAP as a sand and gravel quarry between approximately 1935 and the 1970s. Keystone's mining operations created large depressions across the majority of the KAP. These unlined depressions were later used for disposal of commercial, industrial, municipal, and other types of waste. Industrial and municipal wastes were deposited in the eastern two-thirds of the Site from about 1966 to 1975. Foundry sand and fly ash were deposited in the disposal areas located in the extreme western third of the Site from the early 1970s until 1991.

Key dates in the Site history include:

1986 - the USEPA began investigating the Site.

May 1994 - the Site was placed on the National Priorities List.

January 1995 - the Ohio Environmental Protection Agency (Ohio EPA) and potentially responsible parties (PRPs) entered into the Director's Final Findings & Orders to complete the RI/FS.

1995-2011 - the RI/FS was conducted.

1998 - the USEPA and PRPs entered into an Administrative Order on Consent (AOC) to address landfill gas (LFG) migration and removal of buried containers.

1998 - 2005 - the LFG system was constructed and the buried container removal work was completed.

June 2008 - the Ohio EPA approved the RI Report.

April 2011 - the Ohio EPA approved the FS Report.

July 2012 - the USEPA issued an Addendum to the FS Report.

August 16, 2013 - the USEPA issued the ROD.

October 30, 2018 - the USA and SWPs entered into the CD for RD/RA.

2.2.2 Contaminants of Concern

ROD Section 5.2.1 (Source of Contaminants) states that the Site consists of four contaminant sources (waste, leachate, LFG, and non-aqueous phase liquid [NAPL]) and three affected media (groundwater, ambient air, and soil), and lists the contaminants detected in each medium.

ROD Section 7.1 (Human Health Risk Assessment) states that four contaminants pose the greatest risk to human health at the Site, including trichloroethene, vinyl chloride, cis-1,2-dichloroethene, and benzene.

2.2.3 Risk Exposure Pathways

ROD Section 7.1 (Human Health Risk Assessment) states that exposure to waste, leachate, LFG, NAPL, surface soil, and groundwater at the Site pose unacceptable risks to human health. The following receptors/exposures exceed a cumulative carcinogenic risk of 10^{-4} and/or a hazard index of 1:

- Current trespasser exposure to LFG via inhalation.
- Current resident exposure to LFG via inhalation of ambient air.
- Current resident exposure to surface waste and surface soil in the Off-Property Buried Waste Area (OPBWA) via ingestion and direct contact.
- Future recreational user exposure to LFG via inhalation and surface waste via ingestion and dermal contact.
- Future park worker exposure to LFG via inhalation and surface waste via ingestion and dermal contact.
- Future utility worker exposure to waste via inhalation of ambient air and NAPL via ingestion and inhalation.
- Future commercial worker exposure to LFG via inhalation, and soil via ingestion.
- Future resident exposure to surface waste and surface soil in the OPBWA via ingestion and direct contact.

- Future resident exposure to groundwater (household use) via ingestion, inhalation, and direct contact.

The baseline ecological risk assessment concluded that no unacceptable ecological exposures exist and that final grading and capping will further protect ecological receptors from contaminated media at the Site.

2.2.4 Response Action Summary

In 1998, the Valleycrest Landfill Site Group (VLSG) entered into an AOC with the USEPA to address LFG migration and removal of buried containers.

A perimeter LFG collection system was installed, consisting of gas wells and header piping routed to an enclosed flare where the gas was combusted. The RA includes replacing the perimeter system with an interior system.

The buried container removal action consisted of removal of buried containers within Disposal Areas 1 and 5 where geophysical anomalies were identified.

- Between November 1998 and July 2001 in Disposal Area 5:
 - 26,986 container carcasses (due to the historical disposal practices, and the age of the material, only drum carcasses were recovered) were removed and properly disposed off Site
 - 35,000 cy of impacted waste and soil encountered during the work was treated by ex-situ vapor extraction
 - Approximately 22,500 cy of treated material that passed Toxicity Characteristic Leaching Procedure (TCLP) regulatory levels (40 CFR Part 261.24) was backfilled on Site
 - 12,518 cy of treated material that did not pass TCLP was disposed off Site
- Between February and December 2002 in Disposal Area 1:
 - 15,622 container carcasses (as with Disposal Area 5, only carcasses were recovered) were removed and properly disposed off Site
 - More than 25,000 cy of impacted waste and soil encountered during the work was treated by in-situ vapor extraction to meet TCLP
 - 4,915 cy of material was disposed off Site

In total, 42,608 buried drum carcasses were removed from the Site and more than 65,000 cy of impacted soil and waste material was successfully treated or properly disposed off Site.

The response actions to be completed pursuant to the CD and SOW are:

Task 2: Consolidation and capping of Site

- 1) Consolidation
- 2) Capping at former Disposal Areas 1, 2, and 5
- 3) Capping at former Disposal Area 3
- 4) Actions to address stormwater

Task 3: Actions to address NAPL, LFG, and leachate contamination, as well as stormwater

- 1) Actions to address NAPL
- 2) Actions to collect, flare, and monitor LFG
- 3) Actions to collect and dispose of leachate

Task 4: ICs, groundwater monitoring, and post-construction operation and maintenance (O&M)

- 1) Access and proprietary controls
- 2) O&M
- 3) Groundwater monitoring

As stated above, the Original EC will be amended (Amended EC) to reflect the ROD remedy, which includes restrictive covenants to restrict Site use and prevent interference with the remedy.

2.2.5 Cleanup Objectives

ROD Section 8.1 (Remedial Action Objectives) identified remedial action objectives for the seven media of interest (i.e., the four contaminant sources of waste, NAPL, leachate, and LFG, and the three affected media of OPBWA soil, groundwater, and ambient air), as reproduced in Appendix C.

2.2.6 Substantive Use Restrictions Identified in Decision Documents

As discussed above, the Original EC for the KAP restricts land use and access to groundwater and allows for future development of the Site for recreational, commercial, or light industrial uses only, consistent with the Valleycrest Reuse Framework.

The ROD contained the following use restriction statements (quoted):

- *Institutional controls, including restrictive covenants to restrict site use and prevent interference with the remedy.*
- *Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a*

statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

- An environmental covenant (ERC) is in place that restricts land use and access to groundwater and allows for future development of the site property consistent with the reuse framework. The ERC will require revision to allow public access should reuse of the property occur.*
- Groundwater use will be restricted under the site in accordance with the ERC, with any uses requiring advance EPA approval.*
- The selected remedy leaves some of the contaminated materials in place at the Site, and requires long-term land-use restrictions on portions of the Site. The Site will not be available for unrestricted use and unlimited exposure at the completion of the remedial action, and institutional controls will be required. However, there may be portions of the Site that are suitable for development after completion of the remedial action.*

Pursuant to CD Paragraph 25 (Land, Water, or Other Use Restrictions):

In submitting the ICIAP to EPA for review and approval in accordance with Section 6 (Deliverables) of the SOW, the Settling Work Parties shall propose and identify, by parcel number, each Affected Property where implementation of the Remedial Action will require land, water, or other resource use restrictions, and/or Institutional Controls. For each Affected Property, the ICIAP shall include one or more of the following use restrictions as appropriate depending on the location of the property, its proximity to contamination, or its use in implementing or monitoring the Remedial Action:

- a. Restrictions upon activities that could interfere with the Remedial Action*
- b. Restrictions on the use of contaminated groundwater*
- c. Restrictions on activities that could result in exposure to contaminants in surface and subsurface soils and groundwater*
- d. Restrictions on the construction of new structures on the Site where such construction activities could interfere with the Remedial Action or result in the mobilization of contamination*

All of the above restrictions apply to the KAP and City Lots 74626 and 74625.

Any structures that are built on the Site must consider the need for engineering controls to prevent accumulation of explosive concentrations of LFG within the structures.

2.2.7 Current and Reasonably Anticipated Future Land Use

The KAP is a former sand and gravel quarry and closed landfill owned by Keystone. It is zoned industrial but is currently inactive.

City Lot 74626 is an inactive former industrial plating and auto recycling facility.

City Lot 74625 is a vacant former residential property.

The Site is located in an area of mixed urban, commercial, industrial, and residential development, and various environmentally impacted properties unrelated to the Site.

The RI/FS evaluated both current and future use of groundwater in the Site area. In the vicinity of the Site, the City provides potable water. There is no current or predicted future use of groundwater within the area of the groundwater plume and any installation of potable-use water wells requires a permit from Public Health Dayton & Montgomery County (PHDMC). Therefore, reasonable future uses for groundwater at the Site are limited to those related to investigation, monitoring, or remediation, as outlined in the Original EC.

2.3 Property Information and IC Stakeholder Contacts

2.3.1 Parcel Ownership/Occupancy Information

As discussed in Section 2.1, most of the Site consists of the KAP owned by Keystone. In 2006, the SWPs entered into a settlement agreement with Keystone, under which the SWPs obtained certain property rights to the KAP (copy provided in Appendix D).

In 2011, the Secretary of State for the State of Ohio cancelled the Articles of Incorporation for Keystone due to, among other things, the company's failure to pay certain taxes within the time period prescribed by law. Based upon a search conducted by the SWPs, there are no known surviving officers or directors who may act on behalf of Keystone and there are no known corporate successors to Keystone.

The remaining portions of the Site, pending RA construction completion, include:

- City Lot 74626 (Parcel ID R72-16704-0016) at 115 Valleycrest Drive owned by Linda A. Young at 4139 Schwinn Drive, Dayton, OH 45404; and
- City Lot 74625 (Parcel ID R72-16704-0015) at 119 Valleycrest Drive owned by *de maximis, inc.* at 450 Montbrook Lane, Knoxville, TN 37919.

2.3.2 Property Interest and Resource Ownership

The KAP is bifurcated by Valleycrest Drive, and the plat of survey (see **Figure 2**) states for the Valleycrest Drive right-of-way (ROW), *49.5' Roadway Dedicated on the Plat of Cooper Farm as Recorded in Plat Book A, Page 282 for the 'Use and Benefit of the Owners of the Lands Abutting on Said Roadway, their Heirs and Assigns'.*

There are no other known recorded real property interests, easements, liens, or resource interests in the property that may affect ICs.

2.3.3 Responsible Parties and Other Stakeholders

Contact information for the SWPs is:

Settling Work Parties
de maximis, inc.
c/o: Mr. Mike Samples
Project Coordinator
450 Montbrook Lane
Knoxville, TN 27919
865-691-5052
mikes@demaximis.com

2.3.4 Government Contacts

Government contacts include:

USEPA Region 5
c/o: Mr. Dion Novak
Remedial Project Manager
77 West Jackson Blvd.
Chicago, IL 60604
312-886-4737
Novak.dion@epa.gov

Ohio Environmental Protection Agency
Southwest District Office
Division of Environmental Response and Revitalization
c/o: Mr. Scott Glum
Site Coordinator
401 East Fifth Street
Dayton, OH 45402-2911
(937) 285-6065
scott.glum@epa.ohio.gov

City of Dayton
101 W 3rd Street
Dayton, OH 45402
(937) 333-3333

City of Riverside
5200 Springfield Street, Suite 100
Riverside, OH 45431
(937) 233-1801

Montgomery County Commissioners
451 W 3rd Street
Dayton, OH 45422

2.3.5 Other Stakeholders

Other stakeholder contacts include:

Valleycrest Neighbors and Concerned Citizens (VNCC)
2321 Brookdale Drive
Springfield Ohio 45502
(937) 671-5818

Old North Dayton Neighborhood Association (ONDNA)
c/o Evans Bakery
700 Troy Street
Dayton Ohio 45404
(937) 228-4151

2.4 Accurate Mapping of Residual Contamination, IC Boundaries, and Other Site Features

Figure 2 (Site Layout) presents:

- The spatial extent of all areas of residual contamination as described in the CD
- The KAP and its City lot numbers
- Affected Property Owned by Settling Parties (City Lot 74626; owner has not yet executed the CD)
- Affected Property Owned by Non-Settling Parties (City Lot 74625)
- The spatial extent of engineering controls (e.g., landfill cap, LFG and leachate facilities, stormwater features, and Site fence)
- The location of Valleycrest Drive (to be reopened), where the ROW includes a buried watermain and overhead power lines
- The Site entrance at 950 Brandt Pike

3.0 Key Elements for all Planned/Implemented ICs

3.1 General Elements

The USEPA's 2012 ICIAP guidance divides ICs into four categories.

- Proprietary controls
- Governmental controls
- Enforcement and permit tools with IC components

- Informational devices

The main type of IC to be implemented for the Site is proprietary control through EC.

The entity responsible for IC implementation, monitoring, reporting, and enforcement is the SWPs.

The Original EC was filed with the MCR on October 24, 2007. Following ICIAP approval by the USEPA, the SWPs are to execute the EC Amendment and file it with the MCR.

The substantive use restrictions will be those identified in CD Paragraph 25 as discussed in Section 2.2.6.

A legal description and plat of survey for the KAP is discussed in Section 3.2.1.1.

ECs established for the Site are expected to be long term.

No potential barriers to IC implementation have been identified.

3.2 Elements Specific to Instrument Category

3.2.1 Proprietary Controls

The Original EC between Keystone (Owner), the VLSG (Holder), and the Ohio EPA applied the following activity and use limitations:

- A. No water wells, for potable use, may be installed on any part of the Property. In no event shall any groundwater located at or underlying any part of the Property be used for any purpose, potable or otherwise, except for groundwater remediation, monitoring, or investigation.
- B. The Property shall not be used for residential activities.
- C. The Property shall not be used for any purposes inconsistent with the commercial/retail, light industrial, recreational and other uses specified in the Reuse Framework, or in any manner that would interfere with investigation, monitoring, or remediation.

The Original EC requires submittal to the Ohio EPA annually in the June Monthly Progress Report (MPR) verification that the limitations remain in place and are in compliance with the Original EC.

CD Section VIII (Property Requirements) requires the SWPs to take actions per the following paragraphs:

- 20: Actions Pertaining to the Keystone Affected Properties
- 21: Affected Properties Owned by Settling Parties
- 22: Affected Properties Owned by Non-Settling Parties
- 24: Access Requirements
- 25: Land, Water, or Other Use Restrictions

The requirements of CD Paragraphs 20 to 24 are summarized below. The requirements of CD Paragraph 25 were discussed in Section 2.2.6.

3.2.1.1 CD Paragraph 20: Actions Pertaining to the KAP

CD Paragraph 20.a requires the SWPs to take the following actions for the KAP:

1. Amendment of Environmental Covenant - the SWPs must obtain an amendment of the Original EC (i.e., Amended EC), using the form provided in CD Appendix F to:
 - i. Limit the use of the KAP to include all of the restrictions set forth in CD Paragraph 25 (Land, Water, or Other Use Restrictions) that are included within the ICIAP.
 - ii. Provide access to the USEPA and its representatives.
 - iii. Grant the USEPA the right to seek judicial enforcement of the Amended EC against Keystone and all future owners or transferees of the KAP.

The draft EC Amendment and attachments provided in CD Appendix F have been revised in redline and are provided in Appendix E of this ICIAP including:

- Attachment A Legal Description of Property. The survey and legal description of the KAP prepared in March 2019 (certified by an Ohio-licensed surveyor) is included.
 - Attachment B Original EC.
 - Attachment C Notice Upon Conveyance of Site or Any Portion Thereof.
2. Subordination of Third Party Interests - the SWPs shall complete a title commitment for the KAP to determine whether a third party has an interest that would limit or impair the USEPA's rights under the Amended EC. This was completed as provided in Appendix F of this ICIAP. No interests were identified that would limit or impair the USEPA's rights.
 3. Survey of KAP - the SWPs shall complete an updated survey of the KAP if deemed by the USEPA to be necessary. This was completed as discussed above.
 4. Safeguarding the KAP - the SWPs shall repair and maintain fencing and take all other actions necessary to prevent vandals or unauthorized personnel from entering the KAP. The results of this work are reported in the SWPs' MPRs to the USEPA.

CD Paragraph 20.b (Transfer of Keystone Affected Property to Third-Party) requires the SWPs to take the following actions in the event of a desire by the SWPs to direct Keystone to transfer a fee simple interest in parcels that make up the KAP:

1. Propose to the USEPA the entity who is interested in becoming an owner of one or more parcels ("New Site Owner").

2. After a 45-day opportunity for State of Ohio review and comment, the USEPA shall issue a notice of approval/disapproval of the proposed New Site Owner.
3. Within 120 days of USEPA approval of the proposed New Site Owner, the SWPs shall arrange for court appointment of a receiver to act on behalf of Keystone. A receiver was appointed on November 22, 2019 as provided in Appendix G of this ICIAP.

3.2.1.2 CD Paragraph 21: Affected Properties Owned by Settling Parties

CD Paragraph 21 requires each Settling Party that owns an Affected Property (“Owner SD”) to take the following actions (e.g., for City Lot 74626; owner has not yet executed the CD):

- a. Provide access to the USEPA and SWPs and their representatives, and refrain from using the Affected Property in any manner that will pose an unacceptable risk or interfere with the remedy.
- b. Execute and record an EC.
- c. Within 30 days of the CD Effective Date (October 30, 2018), submit for USEPA approval a notice to be filed regarding its Affected Property in the appropriate land records. The notice shall be recorded within 10 days of the USEPA’s approval.
- d. Not transfer its Affected Property unless and until two requirements have been met, including providing the USEPA with a consent agreement substantially identical in form to the agreement provided in CD Appendix G, which is reproduced in Appendix H of this ICIAP.
- e. Prior to transferring the Affected Property, notify the proposed transferee that the USEPA has selected a remedy regarding the Site and that the CD has been entered into, and notify the USEPA of the proposed transferee.
- f. In the event of any transfer of the Affected Property, the Owner SD shall continue to comply with its obligations under this paragraph, unless the USA otherwise consents in writing.

3.2.1.3 CD Paragraph 22: Affected Properties Owned by Non-Settling Parties

CD Paragraph 22 requires the SWPs to take the following actions for any Affected Property owned by any Non-Settling Party other than Keystone (e.g., for City Lot 74625):

- a. Use best efforts to secure from the Non-Settling Party an agreement to provide access to the USEPA and SWPs and their representatives, and refrain from using the Affected Property in any manner that will pose an unacceptable risk or interfere with the remedy.
- b. Use best efforts to secure the Non-Settling Party’s cooperation in executing and recording an EC.

3.2.1.4 CD Paragraph 24: Access Requirements

CD Paragraph 24 requires the SWPs, in submitting the ICIAP for USEPA approval, to propose and identify, by parcel number, each Affected Property where implementation of the RA will require access for the following activities:

- a. Monitoring the work
- b. Verifying any data or information submitted to the USA
- c. Conducting investigations regarding contamination at or near the Site
- d. Obtaining samples
- e. Assessing the need for, planning, or implementing additional response actions at or near the Site
- f. Assessing implementation of quality assurance and quality control practices as defined in the approved construction quality assurance quality control plan as provided in the SOW
- g. Implementing the work pursuant to the conditions set forth in Paragraph 76 (Work Takeover)
- h. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by the SWPs or their agents
- i. Assessing Settling Parties' compliance with the CD
- j. Determining whether the Affected Property is being used in a manner that is prohibited or restricted under the CD
- k. Implementing, monitoring, maintaining, reporting on, and enforcing any ICs.

The above 11 uses are captured in Paragraph 8 of the draft EC Amendment.

The following access requirements are anticipated.

Affected Property	Parcel	City Lot	Nature of Work
KAP	Various (14 parcels)	Various (16 lots)	Remedial construction and O&M
Affected Property Owned by Settling Party (owner has not yet executed the CD)		74626	Remedial construction and O&M
Affected Property Owned by Non-Settling Party		74625	Remedial construction and O&M
OPBWA - Sherriff-Goslin Roofing		74637	Remedial construction

Affected Property	Parcel	City Lot	Nature of Work
OPBWA - Greater Dayton Premier Management		79198	Remedial construction
Various TBD	Various TBD	Various TBD	Monitoring well or LFG probe installation, monitoring, decommissioning

3.2.2 Government Controls

The Original EC was established under the Ohio Uniform Environmental Covenants Act, Ohio Revised Code (ORC) §5301.80 to 5301.92. The CD requires that the same sections of the ORC be used to amend the Original EC and to execute and record any ECs for Affected Properties owned by Settling Parties and Non-Settling Parties.

As discussed above, installation of potable-use water wells requires a permit from PHDMC. Ohio Administrative Code 3701-28-07 Table 1 Row 23 states that a water source must be located at least 1,000 feet from a landfill.

As shown on **Figure 2**, conveyance piping for stormwater, leachate, and LFG will pass through the Valleycrest Drive ROW. Those features will need to be recorded with the City to enable them to be identified during any One-Call utility clearances.

3.2.3 Enforcement and Permit Tools with IC Components

The CD was issued on October 30, 2018 (Civil Action No. 3:18-cv-00054) by the United States District Court for the Southern District of Ohio, Western Division. The parties bound by the CD are the SWPs as identified in CD Appendix D which consist of:

- Bridgestone Americas Tire Operations, LLC
- Cargill, Inc.
- Flowserve Corporation
- Kelsey-Hayes Company
- NCR Corporation
- Northrop Grumman Systems Corporation
- Waste Management of Ohio, Inc.

CD Section VIII (Property Requirements) provides specific requirements for the Site.

3.2.4 Informational Devices

Informational devices currently planned include continuation of the warning signage on the Site fence. Per Amended EC Paragraph 5.e., *Fences and signs to secure the Property shall be maintained until the written consent of the EPA is obtained to modify such features.*

In the event that Site use changes, then the need for additional information devices, and the population to be addressed, will be reviewed.

3.3 IC Relationship Matrix

The USEPA's 2012 ICIAP guidance recommends developing an IC relationship matrix in order to illustrate the properties of each IC identified for a site, particularly at sites with layered ICs, where there are different combinations of ICs to address contaminated media. However, because the same use restrictions apply to all parcels of the Site (i.e., the KAP, Lot 74626, and Lot 74625), an IC relationship matrix is not needed.

4.0 IC Maintenance Elements

IC maintenance activities, such as monitoring and reporting, typically help ensure that ICs are in place and functioning as intended at a site so that response actions remain protective. Monitoring and reporting activities can provide information and data that helps demonstrate a continued need for ICs that have already been implemented (e.g., residual contamination continues to present unacceptable risks) or a need for changes to existing, or development of new, IC instruments (e.g., residual contamination has spread to additional areas requiring an expansion of existing restrictions).

The SWPs are responsible for IC implementation, monitoring, reporting, and enforcement.

4.1 IC Assurance Monitoring

Events and activities to be monitored include changes in land use, property transfers, and breaches to implemented ICs.

Routine (e.g., quarterly) Site inspections will be conducted to visually: (1) ensure that the engineering controls selected and implemented remain intact and undamaged; (2) verify that the use of the property has conformed to any applicable use restrictions; and (3) determine whether any potential IC deficiencies have been identified and are being addressed in a timely manner.

The status of all ECs will be verified with the MCR annually, to ensure that the IC instruments remain in place, and to review any property transfers.

4.2 Reporting

Per Amended EC Paragraph 12.e), the Holder shall distribute a file-stamped and date-stamped copy of the recorded EC to the USEPA, Ohio EPA, Montgomery County, and each person holding a recorded interest in the Property.

Routine Reporting

The Original EC requires submittal annually in the June MPR verification that the limitations remain in place and are in compliance with the EC. This will be continued through the MPRs submitted to the USEPA. The results of the Site inspections will also be included.

Non-Routine Reporting

Per Amended EC Paragraph 6, *Neither Owner nor Holder (nor any member of the Holder) shall transfer any interest in the Property or make proposed changes in the use of the Site, or make applications for building permits for, or proposals for any work in the Site without first providing notice to EPA and obtaining any approvals or consents thereto which are required under Sections V (General Provisions), VI (Performance of Work), VII (Remedy Review), VIII (Property Requirements), XIII (Notices and Submissions) or Appendix B (Statement of Work) of the Consent Decree.*

Per Amended EC Paragraph 11, any future changes to the Amended EC shall be recorded in the Office of the MCR.

5.0 IC Enforcement Elements

Per Original EC Paragraph 7 (Compliance Enforcement), *Compliance with this Environmental Covenant may be enforced pursuant to ORC 5301.91 or other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA and the Administrator of U.S. EPA from exercising any authority under applicable law.*

The Amended EC will grant the USEPA the right to seek judicial enforcement of the Amended EC against Keystone and all future owners or transferees of the KAP.

ECs executed for Affected Properties owned by Settling Parties shall grant the right to enforce the use restrictions set forth in CD Paragraph 25 that are included within this ICIAP. The SWPs shall use best efforts to obtain the same right in any EC executed for Affected Properties owned by Non-Settling Parties.

6.0 IC Modification and Termination Elements

This ICIAP plans long-term ECs only for properties on which waste remains in place.

Per Amended EC Paragraph 11 (Amendments Early Termination), *Amendments Early Termination. This Amended Environmental Covenant may be amended or terminated by [Settling Work Parties shall insert procedures that comply with ORC §5301.90]. Any future changes to this Amended Environmental Covenant shall be recorded in the Office of the Recorder of Montgomery County, Ohio. Upon transfer of all or any portion of the Property, Owner waives any rights that it might otherwise have under Section § 5301.90 of the ORC to withhold its consent to any amendments, modifications, or termination of this Amended Environmental Covenant, to the extent that it has transferred its interest in that portion of the Property affected by said modification, amendment or termination. The rights of Owner's successors in interest as to a modification, amendment or termination of this Environmental Covenant are governed by the provisions of Section § 5301.90 of the ORC.*

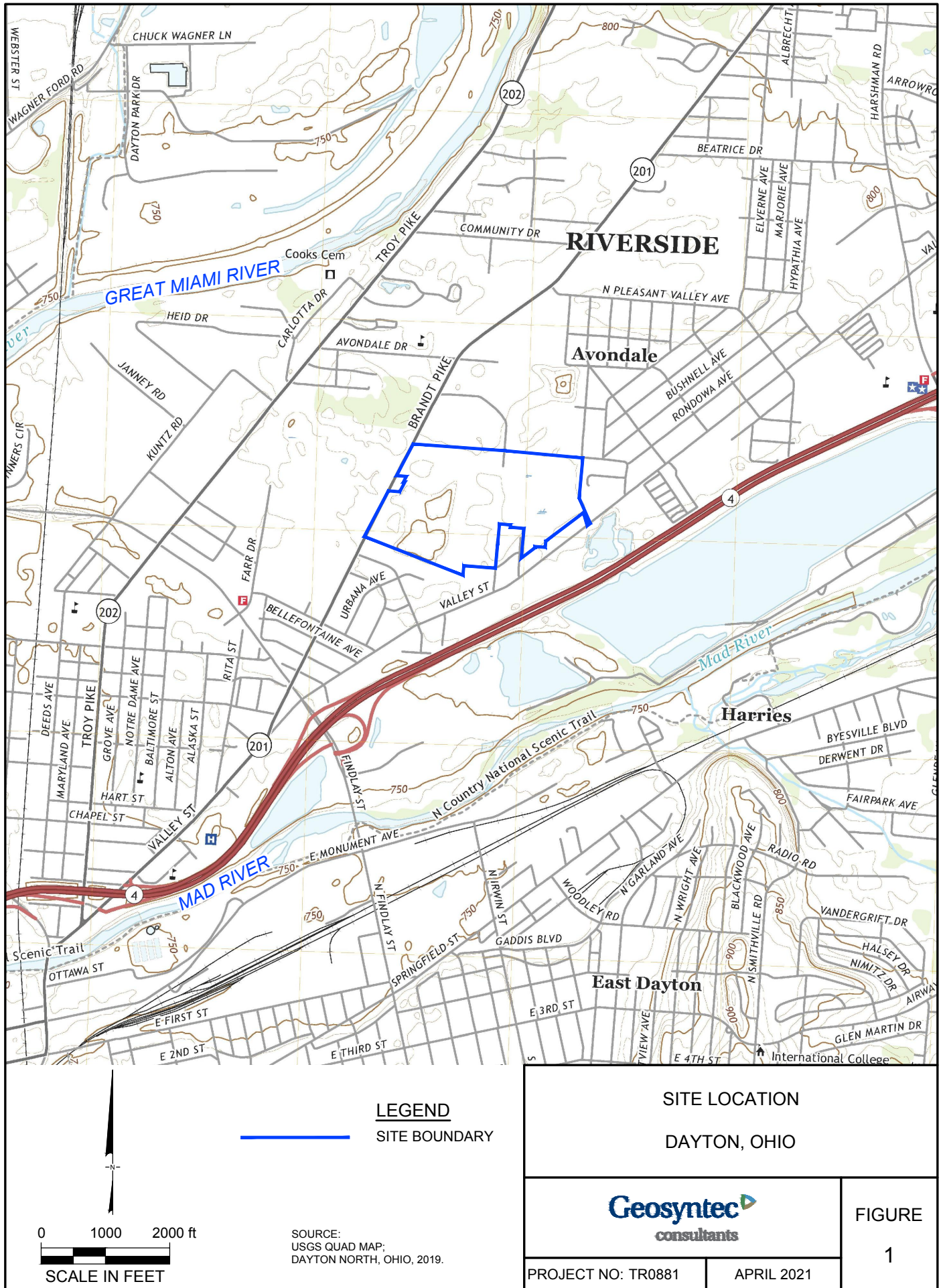
7.0 Appendices

The following appendices are provided:

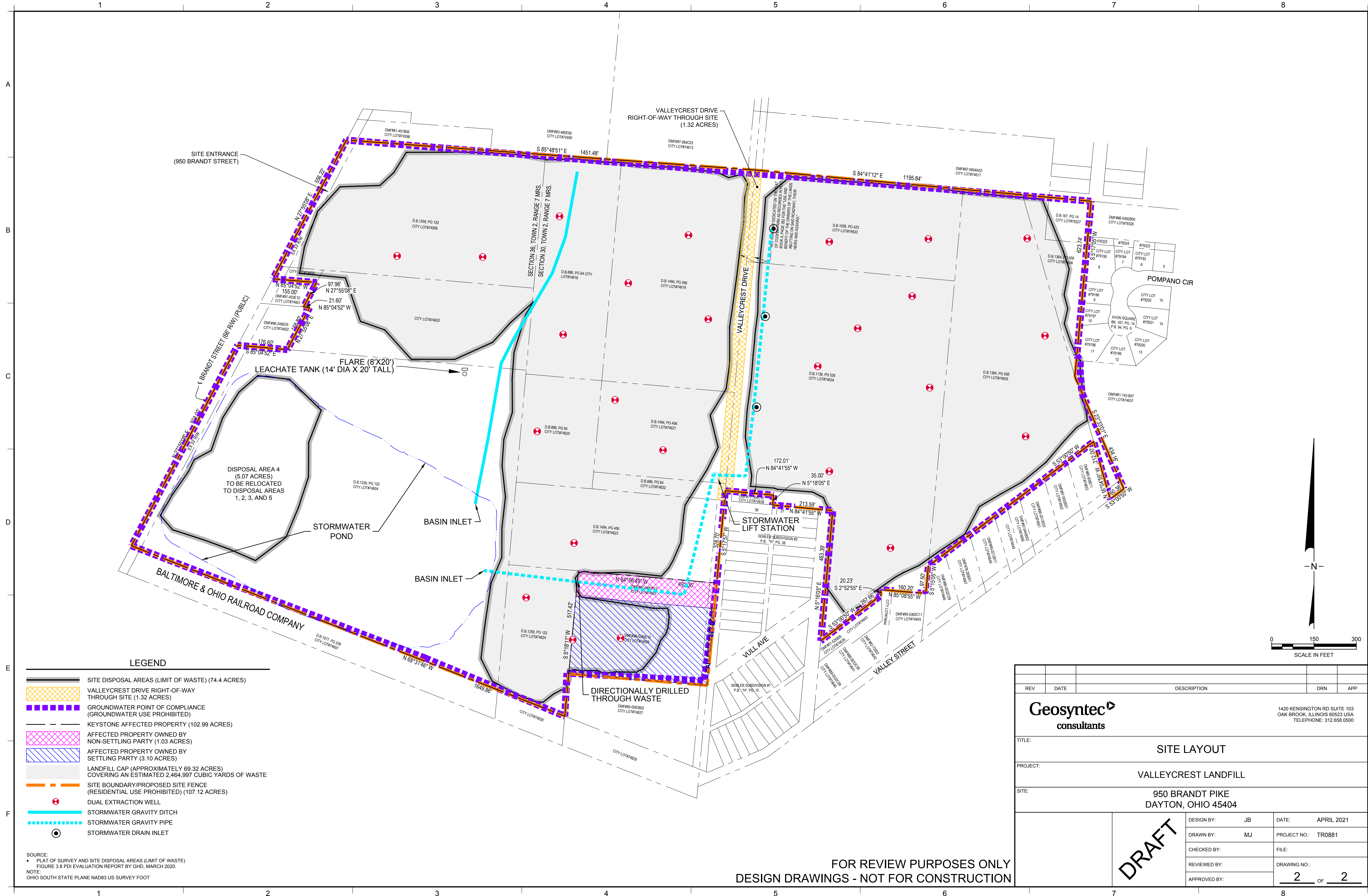
- Appendix A 2006 Common Law Environmental Covenant
- Appendix B 2007 Statutory Law Environmental Covenant
- Appendix C 2013 Record of Decision Remedial Action Objectives
- Appendix D 2006 Keystone/VLSG Settlement Agreement
- Appendix E Draft Environmental Covenant Amendment for Keystone Affected Property
- Appendix F 2019 Property Title Review
- Appendix G 2019 Order Appointing Receiver for Keystone
- Appendix H Draft Consent Agreement

Figures

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REV	DATE	DESCRIPTION	DRN	APP
Geosyntec consultants				
1420 KENSINGTON RD SUITE 103 OAK BROOK, ILLINOIS 60523 USA TELEPHONE: 312.658.0500				
TITLE: SITE LAYOUT				
PROJECT: VALLEYCREST LANDFILL				
SITE: 950 BRANDT PIKE DAYTON, OHIO 45404				
DRAFT			DESIGN BY:	JB
			DATE:	APRIL 2021
			DRAWN BY:	MJ
			PROJECT NO.:	TR0881
			CHECKED BY:	FILE:
			REVIEWED BY:	DRAWING NO.:
			APPROVED BY:	2 OF 2

Appendix A

2006 Common Law Environmental Covenant

NO TRANSFER
12:44pm OCTOBER 03, 2005
KARL L. KEITH, COUNTY AUDITOR

ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by Keystone Gravel Company, an Ohio corporation, with an address at 333 McKimwood Avenue #2B, Dayton, Ohio 45409 ("Owner"), and *de maximis, inc.*, a Tennessee corporation, with an address at 450 Montbrook Lane, Knoxville, Tennessee 37919 ("Holder"), for the purpose of subjecting the Property (as defined herein) to the activity and use limitations set forth herein.

WHEREAS, Owner is the owner of certain real property consisting of parcels of land situated in Dayton, Montgomery County, Ohio and legally described in Exhibit "A" hereto (collectively referred to herein as the "Property"); and,

WHEREAS, the Property comprises the North Sanitary Landfill Superfund Site, encompassing approximately 102 acres, located at 200 Valleycrest Drive in Dayton, Montgomery County, Ohio, and depicted more particularly on the map attached as Appendix A to the January 31, 1995 Director's Final Findings & Orders ("FF&Os") of the Ohio Environmental Protection Agency ("Ohio EPA"), where the treatment, storage, and/or disposal of hazardous substances, and/or the discharge into waters of the state of industrial waste and/or other waste may have occurred, including any other area to which such hazardous substances, industrial wastes, and/or other wastes may have migrated from the Site; and,

WHEREAS, Holder owns real estate adjacent to the Property, consisting of a parcel of land situated in Dayton, Montgomery County, Ohio and legally described in Exhibit "B" attached hereto (the "Adjacent Property"); and,

WHEREAS, Holder and Owner have agreed that the execution, delivery and recording of this Environmental Covenant and the imposition of the restrictions set forth herein will protect human health and the environment and materially benefit the Adjacent Property.

WHEREAS, the City of Dayton has approved a Valleycrest Reuse Framework for the property.

NOW THEREFORE, Owner and Holder agree to the following:

1. Activity and Use Limitations. To protect human health and the environment and benefit the Adjacent Property. Owner hereby imposes and agrees to comply with the following activity and use limitations:

A. No water wells, either for potable or other use, shall be installed on any part of the Property. Notwithstanding the foregoing, no one shall install remediation, monitoring, or investigation wells without the prior written consent of the United States Environmental Protection Agency ("U.S. EPA") or Ohio EPA. In no event shall any groundwater under the Property be used as a potable supply of water.

B. The Property shall not be used for Residential Activities. The term "Residential Activities" shall include the following:

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Montgomery County
Jury Dodge Recorder

- i. Single and multi-family dwelling and rental units;
- ii. Day care centers, pre-schools and schools;
- iii. Hotels, motels and rooming houses;
- iv. Correctional facilities and detention centers;
- v. Hospitals and other extended-care medical facilities; or
- vi. Transient or other residential facilities.

C. In the event that any activity by any person constitutes a violation of these use and activity restrictions, Owner or Transferee, as defined herein, shall notify Holder and any assignee of Holder of such activity within thirty (30) days of becoming aware of the activity.

2. Running with the Land. This Environmental Covenant shall be binding upon the Owner and all assigns and successors in interest, including any Transferee, and shall run with the land, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any party that acquires a future ownership interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

3. Compliance Enforcement. Compliance with this Environment Covenant may be enforced pursuant to or other applicable law including, without limitation, injunctive or other equitable relief. Failure to timely enforce compliance with this Environmental Covenant or the use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA and the Administrator of U.S. EPA from exercising any authority under applicable law.

4. Recordation of Environmental Covenant. This Environmental Covenant shall be recorded in the office of the Montgomery County, Ohio Recorder.

5. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, DATED _____, 2006, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE MONTGOMERY COUNTY, OHIO RECORDER ON _____, 200_, IN MICROFICHE _____. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS:

- A. No water wells, either for potable or other use, shall be installed on any part of the Property. Notwithstanding the foregoing, no one shall install remediation, monitoring, or investigation wells without the prior written consent

of U.S. EPA or Ohio EPA. In no event shall any groundwater under the Property be used as a potable supply of water.

B. The Property shall not be used for Residential Activities. The term "Residential Activities" shall include the following:

- i. Single and multi-family dwelling and rental units;
- ii. Day care centers, pre-schools and schools;
- iii. Hotels, motels and rooming houses;
- iv. Correctional facilities and detention centers;
- v. Hospitals and other extended-care medical facilities; or
- vi. Transient or other residential facilities.

In the event that any activity by any person constitutes a violation of these use and activity restrictions, Owner or Transferee shall notify Holder within thirty (30) days of becoming aware of the activity.

C. Transferee agrees to be bound by and enforce the activity and use restrictions contained in this Environmental Covenant upon any portion of the Property in which Transferee acquires an interest.

Owner or any subsequent Transferee shall notify Holder within ten (10) days after each conveyance of an interest in any portion of the Property. Notice by the Owner or subsequent Transferee shall include the name, address, and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, a legal description of the Property being transferred, a survey map of the Property being transferred, and the closing date of the transfer of ownership of the Property.

6. Amendment or Termination. This Environmental Covenant may be amended or terminated only by written consent of all of the following: the Owner or a Transferee and the Holder. Amendment means any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. Termination means the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Holder and the Owner or Transferee of the Property or portion thereof, as applicable.

This Environmental Covenant may also be amended to satisfy the requirements of Ohio Revised Code ("ORC") Sections 5301.80-5301.92, in which event statutory notices shall be delivered to all appropriate parties. Until such time, this Environmental Covenant shall be effective in accordance with ORC Section 5301.85(E).

7. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining

Environmental Covenant_demaximis inc.DOC

provisions shall not in any way be affected or impaired. Holder may assign its rights under this Agreement at any time to EPA and/or USEPA which will have the right to fully enforce this Environmental Covenant as if it were the Holder.

8. Governing Law This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

[Signature Page to Follow]

The undersigned representative of Owner represents and certifies that he is authorized to execute this Environmental Covenant.

This Environmental Covenant has been executed as of the 26th day of September, 2006.

KEYSTONE GRAVEL COMPANY, an
Ohio corporation

By: J. R. McGregor

Its: President

STATE OF Ohio
COUNTY OF MONTGOMERY

SS:

This instrument was acknowledged before me this 26th day of September, 2006
by J.R. McGregor, President of Keystone Gravel Company, an Ohio
corporation, on behalf of the corporation.

Heidi E. Randolph
Notary Public

This Instrument Prepared By:

Steven H. Schreiber, Esq.
DINSMORE & SHOHL LLP
255 East Fifth Street, Suite 1900
Cincinnati, Ohio 45202
(513) 977-8200

Heidi E. Randolph
Formerly
HEIDI E. SMITH, Notary Public
In and for the State of Ohio
My Commission Expires July 31, 2008

EXHIBIT A

Situated in the State of Ohio, County of Montgomery, City of Dayton being more particularly described as follows:

Being City of Dayton lot numbers 74599, 74603, 74604, 74618,
74620, 74622, 74623, 74619, 74621, 74624, 74633, 74634, 74635,
74636, 74600 and 79327

EXHIBIT B

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot number 74625 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Appendix B

2007 Statutory Law Environmental Covenant

Dinsmore & Shohl LLP
ATTORNEYS

Vincent B. Stamp
513-977-8264
vince.stamp@dinslaw.com

November 5, 2007

FIRST-CLASS MAIL

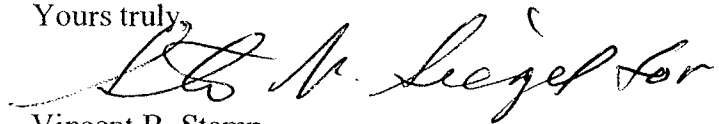
Mark Navarre, Esq.
Ohio Environmental Protection Agency
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215-1099

Re: North Sanitary Landfill Superfund Site

Dear Mark:

Pursuant to the requirements contained therein, I hereby certify, as counsel to the Valleycrest Landfill Site Group ("VLSG"), that the enclosed Environmental Covenant has been recorded on the parcels of land in Montgomery County, Ohio that make up the North Sanitary Landfill Superfund Site, also known as the Valleycrest Landfill. I have also enclosed as an attachment a date-stamped copy of the recorded Environmental Covenant.

Yours truly,



Vincent B. Stamp
Counsel to the Valleycrest Landfill Site Group

Enclosure

cc: VLSG
U.S. EPA (Cynthia Kawakami, Esq.)
The Keystone Gravel Company (Joe McGregor)
City of Dayton, Ohio (Donna Winchester)
City of Riverside, Ohio (Mary Ann Brane)
Montgomery County Commissioners (Carol A. Prewitt, Clerk)
Old North Dayton Neighborhood Association (Teresa Horvath)
Valleycrest Neighbors and Concerned Citizens (Emilee George)

10934-1
SHS

To be recorded with Deed
Records – ORC § 317.08

ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by The Keystone Gravel Company, an Ohio corporation, with an address at 333 Oakwood Avenue #2B, Dayton, Ohio 45409 (“Owner”), the Valleycrest Landfill Site Group, represented by its agent, de maximis, inc., with an address at 450 Montbrook Lane, Knoxville, Tennessee 37919, (“Holder”), and the Ohio Environmental Protection Agency (“Ohio EPA”) pursuant to Ohio Revised Code (“ORC”) §§5301.80 to 5301.92, for the purpose of subjecting the Property (as defined herein) to the activity and use limitations and to the rights of access set forth herein.

WHEREAS, Owner is the owner of certain real property consisting of parcels of land situated in Dayton, Montgomery County, Ohio and legally described in Exhibit “A” hereto (collectively referred to herein as the “Property”); and

WHEREAS, the Property comprises most of the North Sanitary Landfill Superfund Site (“Site”), encompassing approximately 102 acres, located at 200 Valleycrest Drive in the City of Dayton, Montgomery County, Ohio, and depicted more particularly on the map attached as Appendix A to the January 31, 1995 Final Findings & Orders (“1995 FF&Os”) issued by the Director of the Ohio EPA, where the treatment, storage, and/or disposal of hazardous substances, and/or the discharge into waters of the state of industrial waste and/or other waste may have occurred; and

WHEREAS, pursuant to the 1995 FF&Os certain entities that comprise Holder agreed to perform certain interim actions and a remedial investigation and feasibility study of the Site, including the Property, to determine the nature and extent of any contamination at the Site, assess any risks to human health and the environment posed by the contamination, and develop and analyze remedial actions to address identified risks; and

WHEREAS, the administrative record for the Site is located at Ohio EPA’s Southwest District Office, 401 East 5th Street, Dayton, Ohio 45402; and

WHEREAS, the entities that comprise Holder are alleged to be liable as potentially responsible parties (“PRPs”) under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (“CERCLA”), as amended, 42 U.S.C. § 9601 et seq. with respect to the Property; and

WHEREAS, certain entities that comprise Holder and others executed with the United States Environmental Protection Agency (“U.S. EPA”) an Administrative Order on Consent (“AOC”), effective September 13, 1998, relating to the Site pursuant to which certain entities that comprise Holder performed a drum removal and continue to investigate and control landfill gas as required by the AOC; and

10/24/07 14:35:01
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Montgomery County
Willis, E. Blackshear Recorder
265302_12.DOC

WHEREAS, in order to implement the remedy that may be selected for the Site, including operation and maintenance of the remedy, it is necessary to impose certain activity and use limitations on the Property as stated herein for the purpose of protecting human health and the environment; and

WHEREAS, the City of Dayton has approved a Valleycrest Reuse Framework adopted by the Dayton City Commission on October 5, 2005 (the "Reuse Framework") for the Property, a copy of which Reuse Framework is attached hereto as Exhibit "B".

NOW THEREFORE, Owner, Holder, and Ohio EPA agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant developed and executed pursuant to ORC §§5301.80 to 5301.92.
2. Property. This Environmental Covenant concerns approximately 102+ acres of real property in Dayton, Montgomery County, Ohio and more particularly described in Exhibit "A" attached hereto and hereby incorporated by reference herein (the "Property").
3. Owner. The Keystone Gravel Company, an Ohio corporation, whose address is listed above ("Owner"), is the owner of the Property.
4. Holder. The Valleycrest Landfill Site Group, whose address is listed above ("Holder") is the Holder of this Environmental Covenant.
5. Activity and Use Limitations. In order to facilitate the implementation of future monitoring and remedial work by U.S. EPA, Ohio EPA and/or Holder, as well as the remedy that may be selected for the Site, and to protect human health and the environment, Owner hereby imposes and agrees to comply with the following activity and use limitations:
 - A. No water wells, for potable use, shall be installed on any part of the Property. In no event shall any groundwater located at or underlying any part of the Property be used for any purpose, potable or otherwise, except for groundwater remediation, monitoring or investigation.
 - B. The Property shall not be used for Residential Activities. The term "Residential Activities" shall include the following:
 - i. Single and multi-family dwelling units (both owner-occupied and rental);
 - ii. Day care centers;
 - iii. Hotels, motels and rooming houses;
 - iv. Correctional facilities and detention centers;
 - v. Transient or other residential facilities;
 - vi. Elementary and secondary schools; and/or
 - vii. Hospitals and other extended medical care facilities.

C. The Property shall not be used

- i. for any purposes inconsistent with the commercial/retail, light industrial, recreational and other uses specified in the Reuse Framework; or
- ii. in any manner that would interfere with the investigation, monitoring or remediation described in the 1995 FF&Os or the AOC, or in any manner that would be inconsistent with the remedy that may be selected.

In the event that any action by or on behalf of a person who owns an interest in or holds an encumbrance on the Property constitutes a violation of these activity and use limitations, Holder, Owner or Transferee, as defined herein, shall notify Ohio EPA within thirty (30) days of becoming aware of the event or action, and Owner, Transferee or Holder, to the extent that Holder has the reasonable ability to do so, shall remedy the violation of the activity and use limitations within sixty (60) days of becoming aware of the event or action, or such other time frame as may be agreed to by Holder, the Owner or Transferee and Ohio EPA.

6. Running with the Land. This Environmental Covenant shall be binding upon the Owner and all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC §5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

7. Compliance Enforcement. Compliance with this Environment Covenant may be enforced pursuant to ORC §5301.91 or other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA and the Administrator of U.S. EPA from exercising any authority under applicable law.

8. Rights of Access. Owner hereby grants to Ohio EPA, its agents, contractors and employees, and to the Holder, their agents, contractors, and employees, the right of access to the Property for implementation or enforcement of this Environmental Covenant.

9. Compliance Reporting. Holder shall submit to Ohio EPA on an annual basis in its monthly Progress Report for June of each year written documentation verifying that the activity and use limitations remain in place and are in compliance with this Environmental Covenant.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, DATED _____, 200_, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE MONTGOMERY COUNTY RECORDER ON _____, 200_, IN [DOCUMENT _____, or BOOK, _____ PAGE _____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS: GROUNDWATER RESTRICTION; RESIDENTIAL USE RESTRICTION; AND RESTRICTION ON USE INCONSISTENT WITH INVESTIGATION, MONITORING, REMEDIATION OR REUSE.

Owner or any Transferee shall notify Holder and Ohio EPA within ten (10) days after each conveyance of an interest in any portion of the Property. Notice by the Owner or Transferee shall include the name, address, and telephone number of the Transferee of such Property interest, a copy of the deed or other documentation evidencing the conveyance, a legal description of the Property interest being transferred, a survey map of the Property interest being transferred, and the closing date of the transfer of ownership of the Property interest.

11. Representations and Warranties. Owner hereby represents and warrants to the other signatories hereto:

- A. that the Owner is the sole owner of the Property;
- B. that the Owner holds fee simple title to the Property;
- C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;
- D. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property and notified such persons of the Owner's intention to enter into this Environmental Covenant; and
- E. that this Environmental Covenant does not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected.

12. Amendment or Termination. This Environmental Covenant may be amended or terminated only by written consent of all of the following: the Owner or a Transferee, the Holder, and the Ohio EPA, pursuant to ORC §5301.90 and other applicable law. Amendment means any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. It is anticipated that the amendment of this Environmental Covenant may be necessary or appropriate after selection of the remedy for the Site. Termination means the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA, the Holder and the Owner or Transferee of the Property or portion thereof, as applicable. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner or Transferee shall file such instrument for recording with the Montgomery County Recorder's Office and shall provide a true copy of the recorded Instrument to Ohio EPA and U.S. EPA.

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

15. Recordation. Within thirty (30) days after the date of the final required signature upon this Environmental Covenant, Owner or Holder shall file this Environmental Covenant for recording in the Office of the Montgomery County Recorder in the same manner as a deed to the Property, pursuant to ORC §5301.88. Within ten (10) days of the recording of this Environmental Covenant, Owner or Holder shall certify to Ohio EPA that the Environmental Covenant has been filed for recording, and shall include with the certification a filed and date-stamped copy of the recorded Environmental Covenant.

16. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the Montgomery County Recorder's Office.

17. Distribution of Environmental Covenant. The Owner shall distribute copies of the recorded Environmental Covenant to: U.S. EPA, Ohio EPA, the Holder, any lessee, each person holding a recorded interest in the Property, the City of Dayton, Ohio, the City of Riverside, Ohio, the Montgomery County Commissioners, the Old North Dayton Neighborhood Association, and the Valleycrest Neighbors and Concerned Citizens organization.

18. Notice. Unless otherwise notified in writing by or on behalf of any party hereto, any document or communication required by this Environmental Covenant shall be submitted to:

Ohio EPA, Southwest District Office
c/o Valleycrest Landfill Site Coordinator
Division of Emergency and Remedial Response
401 East 5th Street
Dayton, Ohio 45402

Valleycrest Landfill Site Group
c/o VLSG Alternate Project Coordinator
de maximis, inc.

450 Montbrook Lane
Knoxville, Tennessee 37919

The Keystone Gravel Company
Keystone Sand & Gravel
333 Oakwood Avenue #2B
Dayton, OH 45409

The undersigned representatives of Owner and Holder represent and certify that they are authorized to execute this Environmental Covenant.

This Environmental Covenant has been executed as of the 18 day of JULY, 2007.

THE KEYSTONE GRAVEL COMPANY, an
Ohio corporation

By: J. R. McGregor

Its: President

STATE OF OHIO)

)

SS:

COUNTY OF MONTGOMERY)

This instrument was acknowledged before me this 18 day of July, 2007
by J. R. McGregor, President of The Keystone Gravel Company, an
Ohio corporation, on behalf of the corporation.

Charles D. Shook
Notary Public

CHARLES D. SHOOK, Attorney at Law
Notary Public, State of Ohio
My Commission has no expiration date
Section 147.03 R. C.

PREPARED BY: STEVE SCHRIEBER, ATTORNEY

VALLEYCREST LANDFILL SITE GROUP

By: *de maximis, inc.*, a Tennessee corporation,
its Agent

By: *Michael A Miller*

Its: *Chief Operating Officer*

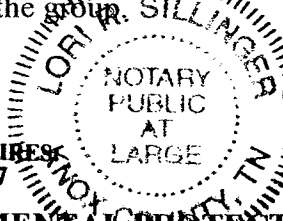
STATE OF *Tennessee*)

)

COUNTY OF *Knock*)

SS:

This instrument was acknowledged before me this *17th* day of *September*, 2007
by *Michael A. Miller, COO* of *de maximis, inc.*, a Tennessee
corporation, on behalf of the corporation, in its capacity as agent of the Valleycrest Landfill Site
Group, on behalf of the group.



[Signature]
Notary Public

MY COMMISSION EXPIRES
December 22, 2007

OHIO ENVIRONMENTAL PROTECTION AGENCY

[Signature]
Chris Korleski, Director

10/10/07
Date

State of Ohio)

) ss.

County of Franklin)

Before me, a notary public, in and for said county and state, personally appeared Chris
Korleski, the Director of Ohio Environmental Protection Agency, who acknowledged to me that
he did execute the foregoing instrument on behalf of Ohio Environmental Protection Agency.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal
this *10th* day of *OCTOBER*, 2007.



Charma Diane Casteel
Notary Public

CHARMA DIANE CASTEEL
NOTARY PUBLIC
STATE OF OHIO
MY COMMISSION EXPIRES
MAY 10, 2009

EXHIBIT "A"
Legal Descriptions

Situated in the State of Ohio, County of Montgomery, City of Dayton being more particularly described as follows:

Being City of Dayton lot numbers 74599, 74603, 74604, 74618,
74620, 74622, 74623, 74619, 74621, 74624, 74633, 74634, 74635,
74636, 74600 and 79327

EXHIBIT "B"
Valleycrest Reuse Framework

Valleycrest Reuse Framework

Prepared for: The City of Dayton, Office of Economic Development



Case RC-017-2005 approved by City of Dayton Plan Board on August 16, 2005
Informal Resolution No. 655-05 adopted by the Dayton City Commission on October 5, 2005



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Definitions

Federal EPA - Federal Environmental Protection Agency

Ohio EPA - Ohio Environmental Protection Agency

NEPB - Northeast Priority Board

ONDNA - Old North Dayton Neighborhood Association

RFT - Reuse Facilitation Team

VNCC - Valleycrest Neighbors and Concerned Citizens



Introduction

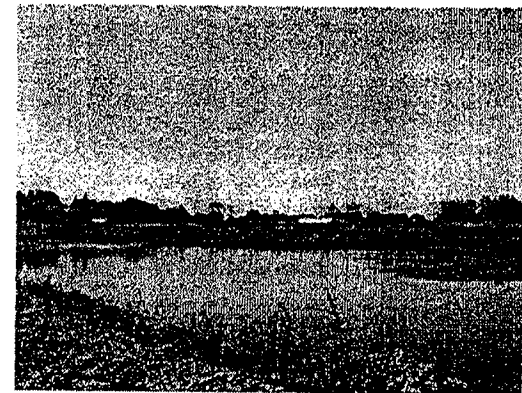
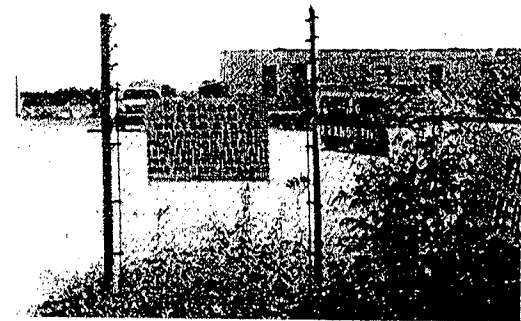
Background

The 100 acre Valleycrest Landfill is situated in the northeast section of Dayton between the Mad and Miami Rivers. It is surrounded by a mixed-use residential neighborhood of single family homes, apartments, and commercial uses. The City of Riverside lies to the north and the Old North Dayton Neighborhood to the west. Valleycrest lies between the City of Dayton's two well fields: the Miami Well Field to the northwest and the Mad River Well Field to the southeast. Between 1966 and 1975, after extensive quarrying, the site was used as an industrial and municipal solid waste landfill. The western 1/3 of Valleycrest, along Brandt Pike, received slag and foundry sands while the eastern 2/3 of the site was filled primarily with municipal and industrial wastes. During its time of operation thousands of drums, since removed, containing industrial waste products were hauled to the site. The landfill was placed on the National Priorities List of Superfund sites on May 31, 1994.

Superfund sites such as this one cannot be planned in the same manner as "greenfield sites", or previously undeveloped lands. Because of its long history of excavation and filling, the Valleycrest Landfill site is physically limited in the way in which it can be redeveloped. The western 1/3 of the site will be capable of supporting traditional building loads due to the foundry sands and slag that were deposited here. The eastern 2/3 of the site, however, will be restricted to lightweight structures (such as restrooms, concession stands, etc.), commercial activity and recreational uses. Portions of the site may require capping coverage. Continued environmental monitoring will be necessary due to the methane gas production, the close proximity to residential neighborhoods, and the location between the two drinking water well fields. Recognizing these limitations is of critical importance in order to develop a site-sensitive redevelopment solution.

Despite its extensive constraints, the size and location of the Valleycrest site offers a rare and exciting opportunity to do something on a large scale in northeast Dayton. Located adjacent to Route 4, it provides an exceptional opportunity to connect with Downtown Dayton, the Mad River Recreation Corridor, and Wright-Patterson Air Force Base. It is a few miles from the proposed Tech Town development at Webster Station and about 11 miles from Dayton International Airport. The following are key components of the local and regional context (also see context map page 4):

- Old North Dayton Neighborhood
- Downtown Dayton
- The Mad River Recreation Corridor
- Springfield Street Entertainment Office Center
- Wright-Patterson Museum and Visitor Center
- Wright-Patterson Air Force Base
- Wright State University
- The Harshman Commercial Corridor
- Tech Town
- Dayton International Airport
- The City of Riverside



Introduction

Opportunities

For the redevelopment of Valleycrest to be successful, a customized strategy must be developed. It is critical that this redevelopment strategy include concepts with responsible economic positioning, responsive site design, and substantial community support. Due to the fact that former landfill sites require additional effort and funding to redevelop, strategic economic positioning and niche marketing techniques should be implemented which would focus on non-traditional, emerging economic sectors. These emerging sectors, such as green power production, will attract developers, public interest, and assist in creating a positive, renewed image of Valleycrest.

The primary goal for redevelopment of the site is to create a neighborhood-centered development, with positive implications for job creation and environmental reconditioning. The site's limited load-bearing capacity and need for some type of ongoing environmental remedial measures may inhibit conventional, market-driven development.

Industrial Use:

The market for traditional space appears to be saturated, as a nearby industrial park continues to sit vacant more than a year after final platting and installation of public infrastructure. However, the availability of substantial acreage, with access to and visibility from Route 4 may support specialized light industry in unique combinations.

Commercial Use:

Given the site's constraints and the surrounding empty businesses along the commercial areas of Valley Street, quality commercial uses will likely not drive redevelopment. Although the interior of the site could easily support land-intensive commercial uses that every city needs (mini-warehouses, lumberyards, and other quasi-industrial uses), such uses would be difficult to mesh with the surrounding residential neighborhoods. As the site redevelops, potential for small-scale commercial/retail development will improve particularly on areas fronting Valley Street. The non-commercial activities on site may ultimately generate supporting commercial spin-off in surrounding areas.

Residential Use:

Given that the site will continue to generate methane, residential redevelopment is not a viable option.

Recreational Use:

Publicly accessible, active hardscape and softscape recreational use, such as baseball and soccer fields, BMX biking and walking trails, are appropriate uses given the potential requirement to cap portions of the site. Additionally, the adjacent neighborhoods would directly benefit from such uses. The Mad River Recreation Corridor to the south could connect on site recreation to Downtown and the Wright-Patterson Air Force Base.



Introduction

Concepts For Redevelopment

Based on its regional and local context, as well as its redevelopment constraints, the Valleycrest site would benefit from uses that emphasize green, environmentally-friendly activities and building practices that incorporate employment, recreational, and semi-educational attributes. The following uses are mutually beneficial when grouped together in a single location and can work to transform the Valleycrest site into a successful asset to its community. Potential concepts for redevelopment on the Valleycrest site are:

- **Active and Passive Recreation**

Hardscape and softscape active recreational uses such as soccer and baseball fields, BMX biking and walking trails are acceptable, and would provide an additional barrier between the areas of land that may be capped and subsurface materials. Recreation amenities also provide tangible neighborhood benefits and provide an open space component for the development. The Valleycrest site is also adjacent to the Mad River Recreation Corridor to the south, which could connect onsite recreational uses to Downtown Dayton as well as Wright-Patterson Air Force Base.

- **Green Power Production**

Green Power Production facilities could provide a reliable, clean power source for the industrial uses on site as well as the surrounding neighborhoods.

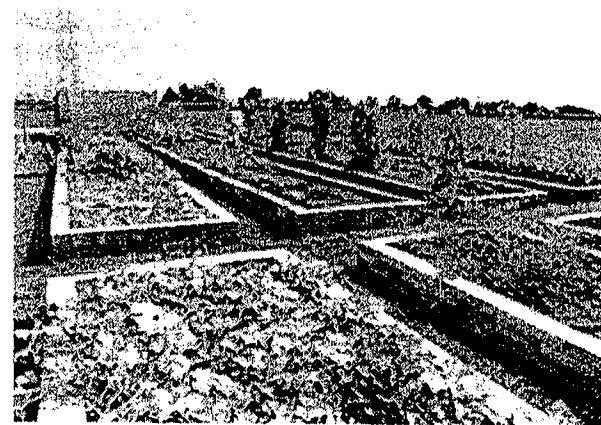
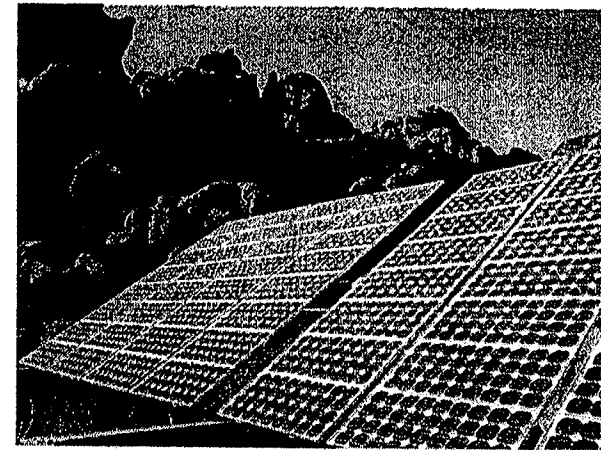
- **Urban Agriculture and Horticulture**

Urban Agriculture and Horticulture on the Valleycrest site would produce cleaner air, fresh produce to sell in the local economy as well as other positive effects. Lightweight greenhouse structures would be ideal on this site due to its load-bearing limitations and would provide an additional barrier between the surface and subsurface.

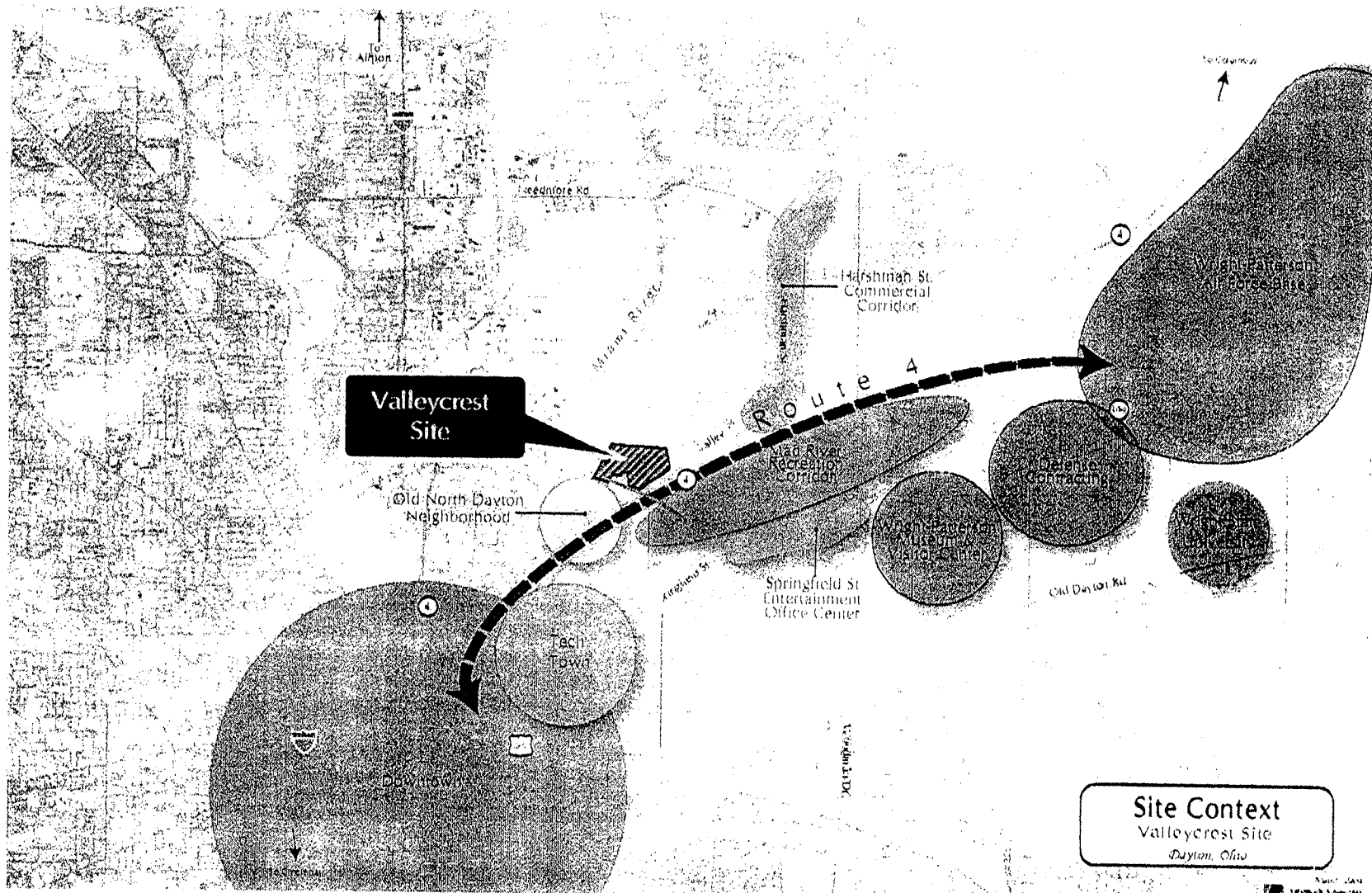
- **Eco-Industrial Development**

Eco-Industrial development on site would create jobs while manufacturing products in a clean, quiet and more environmentally friendly process. Eco-industrial structures are typically built with energy efficient building materials and implement energy-saving methods.

The purpose of the Valleycrest Reuse Framework is to guide the decision making process for the redevelopment of this vital piece of the Dayton community and to assist in further defining the future of Valleycrest.



Context



Redevelopment Goals

Goals

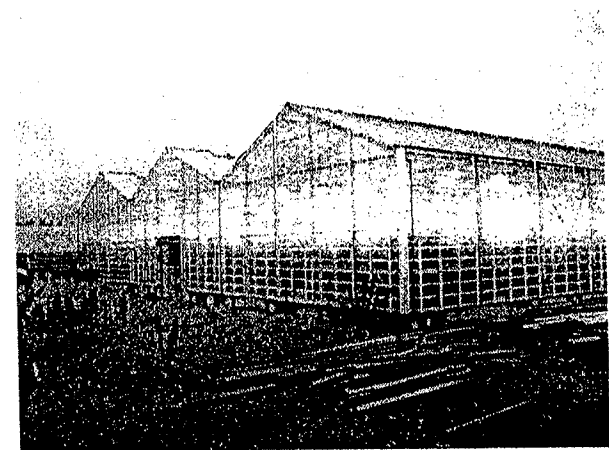
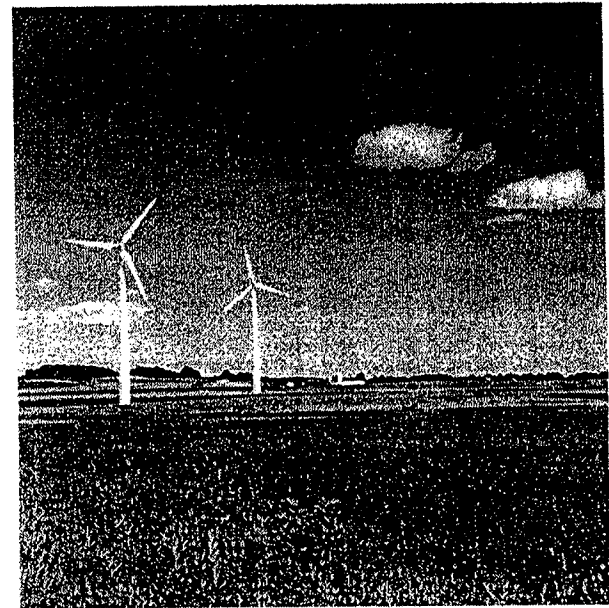
- To create a neighborhood-centered development with positive implications for job creation and environmental conditioning
- Ensure the safety of human health and the environment
- Provide a tangible benefit to the surrounding neighborhoods
- Employ "green" uses to combat the site's negative image from its past use
- Provide new employment opportunities
- Generate new tax base
- Take advantage of opportunities for the cogeneration of heat and power
- Respond to existing site conditions and locational opportunities
- Address the need for lightweight construction (such as restrooms, concession stands, etc.) and capping requirements
- Accommodate the need for ongoing remediation and environmental monitoring
- To review existing data, reports and plans relating to the Valleycrest site and surrounding area
- To conduct site inventory and analysis of the Valleycrest site
- To gather input from the City of Dayton, NEPB, VNCC, ONDNA, Valleycrest Landfill Site Group, and conduct investigative interviews with potential reusers in order to gain a sense of community goals and attitudes
- To make recommendations for Valleycrest Landfill site improvements, making it a valuable asset to the Dayton community



Redevelopment Objectives

Objectives

- Reclaim the Valleycrest Landfill site for reuse potential
- Develop publicly accessible active and passive/open space recreation
- Eco-Industrial Development
- Green Power Distribution
- Urban Agriculture and Horticulture
- Research Institutions
- Establish compatibility with Downtown Dayton, Old North Dayton neighborhood, the Mad River Recreation Corridor, Wright-Patterson Air Force Base and Museum, and Wright State University
- Develop a framework for redevelopment of the Valleycrest Landfill site



Planning and Design Process

Throughout the Planning and Design Process, a definite focus was placed on collaboration and public participation. A series of public forums were held in which citizens had the opportunity to voice their opinions and actively shape the future of the Valleycrest Landfill site.

Work Phase I Preliminary Investigations

Base mapping information and other relevant data was provided by the City of Dayton in order to begin the project process. This information was then analyzed and discussed with the RFT, in order to define the physical constraints and limits of development for the site. Extensive site inventory and analysis was then conducted in order to fully comprehend the critical site issues and conditions, including a firsthand visit to the Valleycrest Landfill site. A strong partnership was developed between the City of Dayton, the Federal and Ohio EPAs, the public and Envision-Works Inc. in order to produce a preliminary outline of the written Planning and Design Program. This document will serve as a development framework for the reuse plan, including design goals, objectives, options and standards for the site. Feedback was then solicited for this Planning and Design program from the City of Dayton RFT, and revisions were made.

Work Phase II Final Reuse Framework Formulation

Based on the feedback received on the approved Planning and Design Program, two preliminary reuse framework scenarios were developed for the Valleycrest Landfill site. These scenarios explored the potential land uses both within and immediately adjacent to the landfill. The alternative landfill reuse frameworks depicted schematic site and facility development patterns including streets and parking, building configurations, open spaces, environmental design enhancements, and other public and private land use amenities that would describe the potential physical development on site. These alternative scenarios were prepared to graphically depict the recommended land uses (see Appendix, pages 11&12).

VALLEYCREST LANDFILL-REUSE FRAMEWORK

Envision-Works, Inc. November 30, 2004

Work Phase I - Preliminary Investigation

Base Mapping



Data Collection



Site Inventory and
Analysis



Planning And Design
Program

Work Phase II - Reuse Plan Formulation

Alternative Plans and
Evaluation



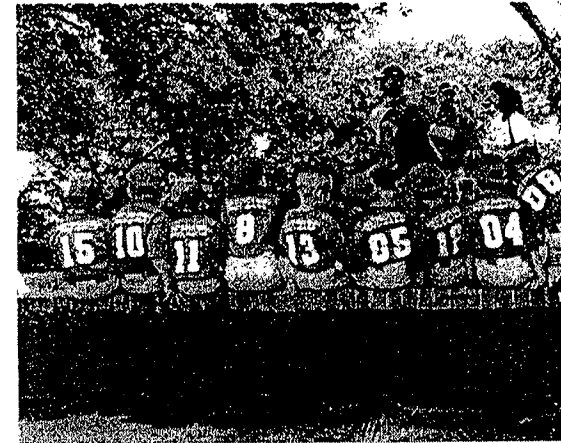
Final Development
Plan

Site Recommendations

The Final Reuse Framework included recommendations for the future improvement of the Valleycrest Landfill site. The following recommendations and descriptions correspond to the map on page 10.

All Areas

- All existing vegetation on site is strongly encouraged to be protected and preserved primarily on the perimeter and where appropriate throughout the development.
- All new development on the site should encourage and promote the use of building and construction techniques, designs and materials that are environmentally responsible, sustainable and will result in a healthy place in which to work and play.
- All uses and activities on site must be publicly accessible and meet all City of Dayton regulations for such items as, but not limited to, noise, hours of operation and public assembly.
- Zoning should reflect the intent and purpose of the recommended development for the subject area.
- Explore using existing geographical features for future site amenities, energy efficiency and environmental sensitivity.
- Public R.O.W. access must be provided through the site for existing residents to the north and other on site amenities.
- Provide a minimum landscape buffer of 30' between all residential areas adjacent to the developable Valleycrest site.
- Explore methods of improving the visual appearance of the properties adjacent to the eastern property line of the site.



Site Recommendations

Area A

- Clean up and enhance the "natural" appearance of the site along Brandt Pike.
- Site redevelopment should be contained within the western 1/3 of the site. Redevelopment should encourage uses that promote building development possibilities to include, but not limited to, low intensity commercial and/or business offices, a public safety facility, a health club, an indoor/outdoor recreation facility, a research development facility, etc.
- Explore acquiring and using the railroad R.O.W. to the south for pedestrian and bicycle access to the site.

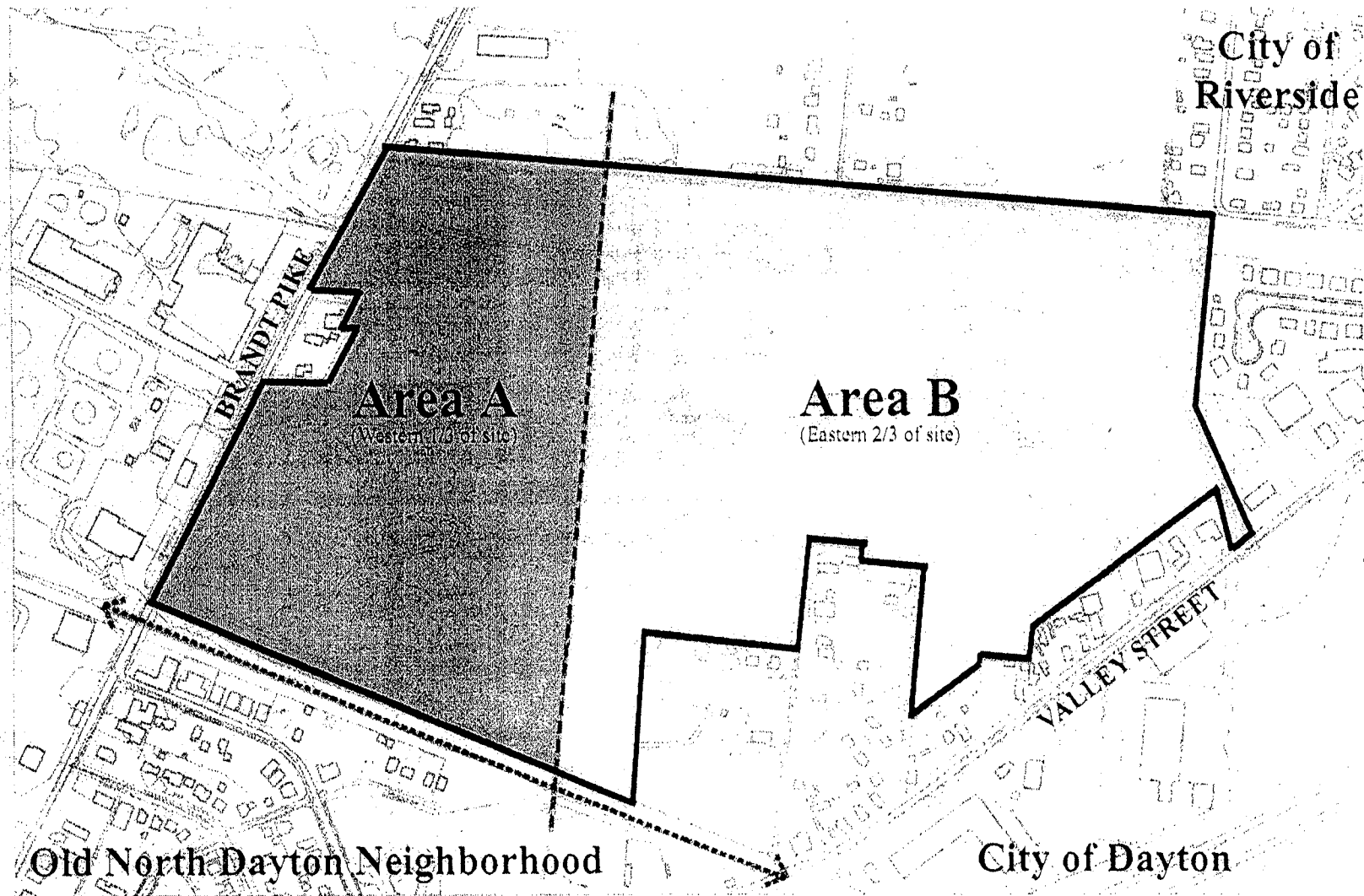


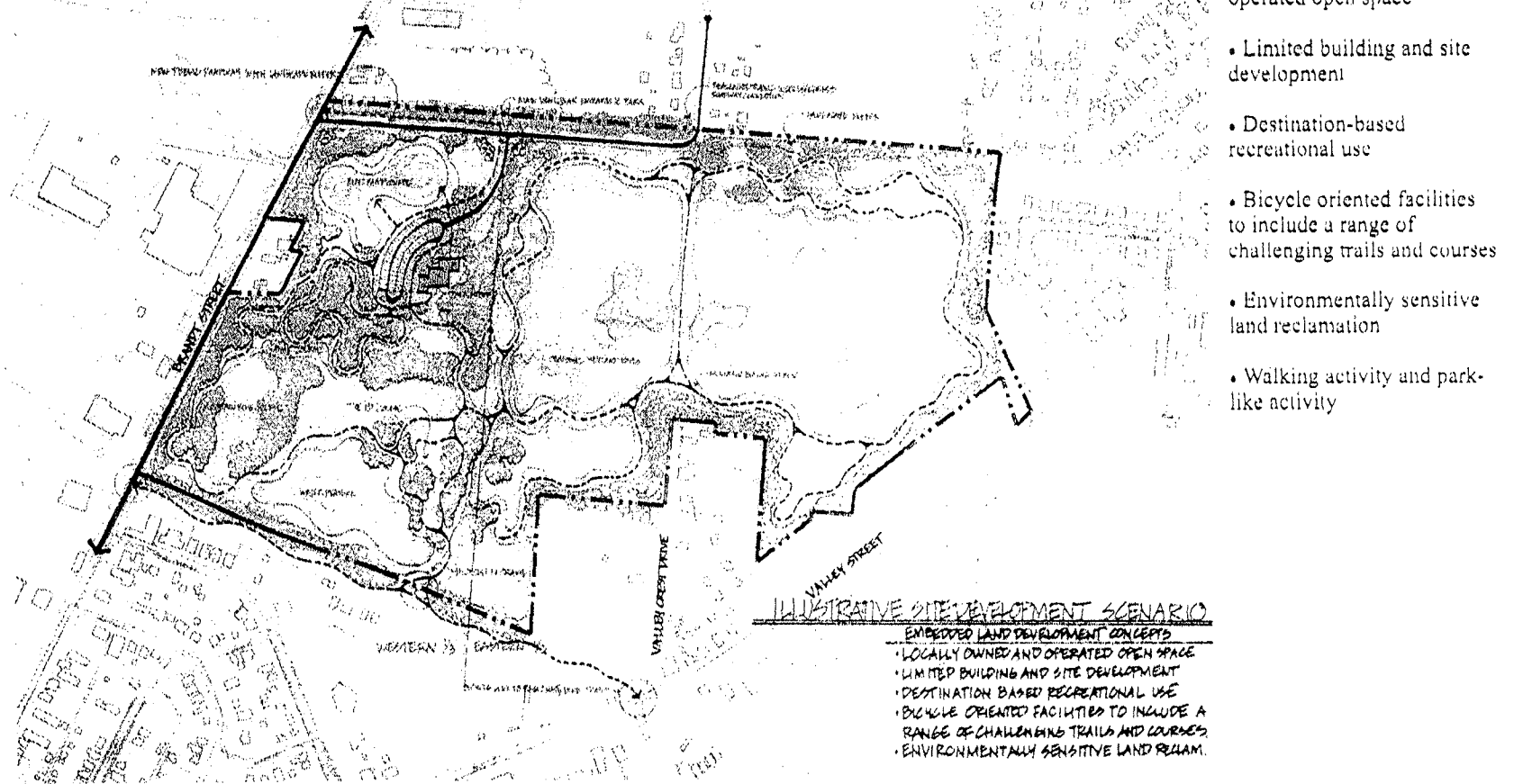
Area B

- Explore acquiring and using the railroad R.O.W. to the south for pedestrian and bicycle access to the site.
- Development on eastern 2/3 of the property should encourage uses which have an emphasis on publicly accessible outdoor and open space recreational activities such as soccer, tennis, and biking. Zoning should reflect the intent and purpose of the recommended development for the subject area.



Final Reuse Framework Map

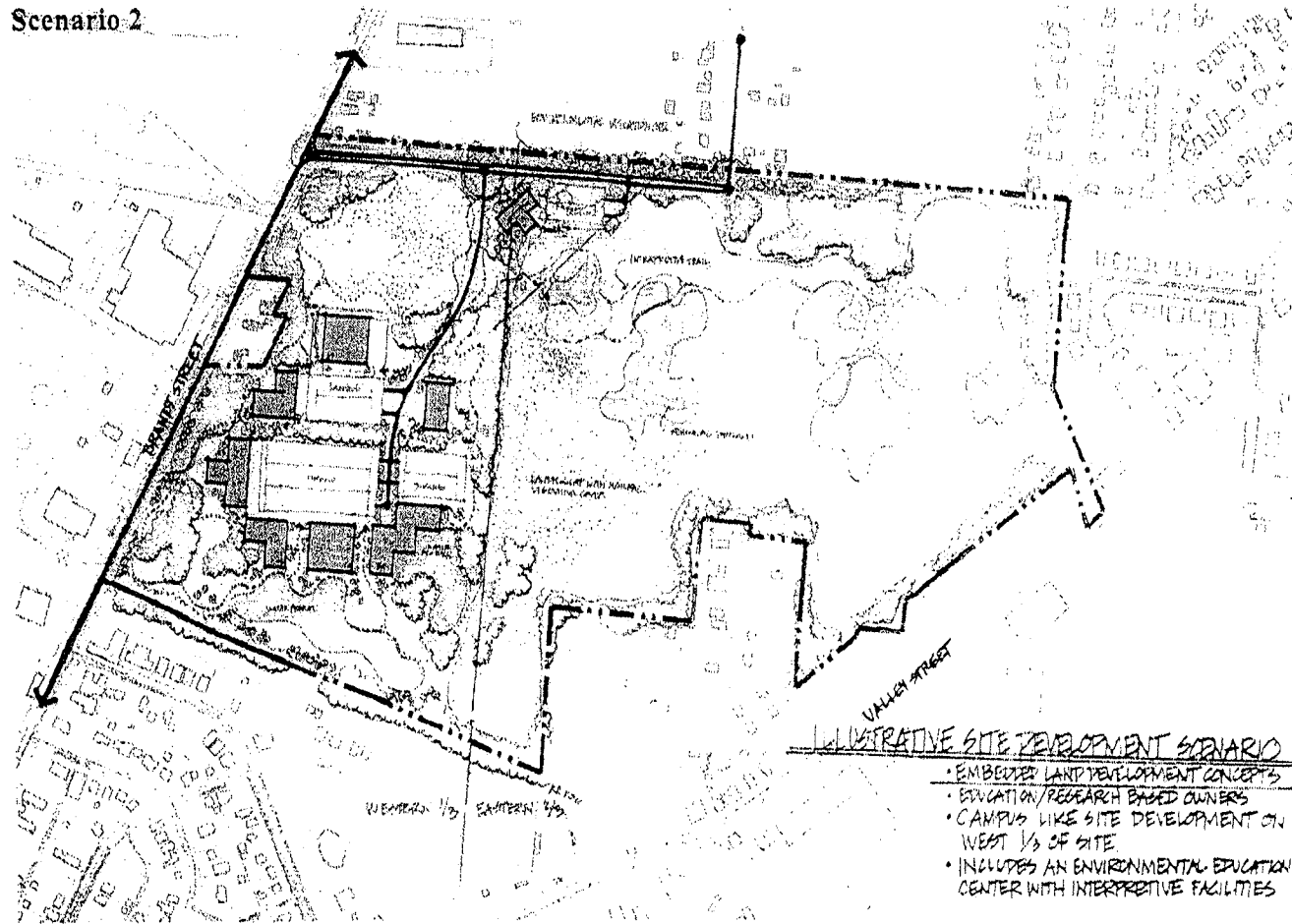




- Limited building and site development
- Destination-based recreational use
- Bicycle oriented facilities to include a range of challenging trails and courses
- Environmentally sensitive land reclamation
- Walking activity and park-like activity

Appendix

Scenario 2



- Education/research based on owner preference
- Campus-like site development on western 1/3 of site
- Includes environmental education center with interpretive facilities



Appendix

Contributors

The City of Dayton

Reuse Facilitation Team (RFT)

Greg DeLong
Ernie DeWaters
Gwen Eberly
Gayle Galbraith
Mary Taylor
Joseph Weinel
Donna Winchester

Office of Economic Development
Department of Planning and Community Development
Department of Public Works Division of Civil Engineering
Department of Water

Northeast Priority Board
Old North Dayton Neighborhood Association
Valleycrest Neighbors and Concerned Citizens

Montgomery County
Montgomery County Combined Health District
Montgomery County Solid Waste District

The City of Riverside
Greenworks: Landfill Site Opportunities Analysis
United States EPA
Ohio EPA
Valleycrest Landfill Site Group

Envision-Works Inc.
Gary Sierschula
Eric Sauer
Katie Brenkert
Elise Donaldson

Appendix C

2013 Record of Decision

Remedial Action Objectives

8.0 Remedial Action Objectives and ARARs

8.1 Remedial Action Objectives

Remedial action objectives (RAOs) are specific goals to protect human health and the environment and as such, provide the basis for developing cleanup options that will be protective of human health and the environment. The RAOs are based on the information gathered during the RI, EPA guidance, applicable, relevant and appropriate requirements (ARARs) for the site, and the conclusions of the HHRA, including human health and ecological risks.

Acceptable RBPRGs were calculated for each chemical of concern (COC) in each medium of concern for each pathway to be addressed within each exposure area. Tables 1 and 2 summarize the COCs, risk-based preliminary remediation goals (RBPRGs), and range of detected concentrations for each exposure area.

The RAOs address site-related receptor and pathway risks and hazards exceedances based on the results of the HHRA and development of RBPRGs and are consistent with the NCP and EPA RI/FS guidance. The RAOs are listed below for each of the four contaminant sources (waste, NAPL, leachate, and LFG) and three affected media (OPBWA soil, groundwater, and ambient air).

8.1.1 Waste

- Prevent inhalation (via ambient air) of AOC 1 waste COCs by a future utility worker at concentrations greater than the RBPRGs
- Prevent ingestion, direct contact, and inhalation (via ambient air) of AOC 1 surface waste COCs by a future park worker, future recreational user, and current/future off-property and OPBWA resident at concentrations greater than the RBPRGs
- Prevent ingestion of AOC 2 waste COCs by a future construction worker at concentrations greater than the RBPRGs
- Prevent ingestion, direct contact, and exposure to radioactive materials in former disposal area 3 greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the point of compliance (POC) (see Figure 4.5), or a cumulative carcinogenic risk of 10^{-5} or a hazard index of 1
- Reduce infiltration and formation of leachate

8.1.2 NAPL

- For AOC 1, prevent ingestion and inhalation (via ambient air) of COCs by a future utility worker at concentrations greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the POC, or a cumulative carcinogenic risk of 10^{-5} or a hazard index of 1

- Reduce infiltration and formation of leachate

8.1.3 Leachate

- For AOC 1, prevent direct contact with COCs by a future utility worker at concentrations greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the POC, or a cumulative carcinogenic risk of 10^{-5} or a hazard index of 1

8.1.4 Landfill Gas

- For AOC 1, prevent inhalation (via ambient air) of COCs by a future park worker, future recreational user, current trespasser, and current/future off-property and OPBWA resident at concentrations greater than the RBPRGs
- For AOC 2, prevent inhalation (via ambient air) of COCs by a future commercial worker, future maintenance/park worker, and current/future off-property resident at concentrations greater than the RBPRGs
- Prevent accumulation of explosive concentrations of LFG within structures
- Prevent migration of LFG having methane above the LEL beyond the property boundary
- Prevent inhalation of vapors in excess of RBPRGs in on-site and off-property indoor air for current and future residents, current trespassers, future utility workers, and future construction workers
- Prevent inhalation of radon from radioactive materials in former disposal area 3 in excess of RBPRGs in on-site indoor air for future utility, commercial, and construction workers, and future park workers

8.1.5 OPBWA Soil

- Prevent ingestion and direct contact of AOC 1 surface soil COCs by a future OPBWA resident at concentrations greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the POC, or a cumulative carcinogenic risk of 10^{-5} or a hazard index of 1

8.1.6 Groundwater

- Prevent ingestion, direct contact, and inhalation (via ambient air) of contaminants in groundwater at concentrations greater than the MCLs (or site-specific background where higher) beyond the POC by a future resident, or an evaluation of cumulative carcinogenic risk for mixtures of contaminants will be required
- Restore contaminated groundwater to its beneficial use at and beyond the POC within a reasonable timeframe, consistent with the MCLs (or site-specific background where higher), or a cumulative carcinogenic risk of 10^{-5} or a hazard index of 1

8.1.7 Ambient Air

- Prevent inhalation of vapors or dust in excess of RBPRGs in ambient air

8.2 Groundwater

The EPA maximum contaminant levels (MCLs) or Ohio EPA MCLs (where more stringent) listed in Table 4 are the remediation goals for site groundwater. However, MCLs provided for individual constituents may not account for cumulative risks posed by mixtures of constituents. Completion of groundwater remedial action at the site will require an evaluation of the cumulative residual risk, which will be completed as part of the final remedial action.

8.3 Applicable or Relevant and Appropriate Requirements

EPA evaluates ARARs to determine the appropriate extent of site cleanup, scope and formulate remedial action alternatives, and govern the implementation and operation of the selected action.

The NCP at 40 C.F.R. § 300.5 defines ARARs as follows:

Applicable requirements are cleanup standards, standards of control, and substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental law, or facility siting laws, that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or any other circumstances at a CERCLA site.

Relevant and appropriate requirements are those cleanup standards, standards of control, or other substantive environmental protection requirements, criteria, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

EPA ARAR guidelines (EPA, 1988) state that the relevance and appropriateness of a requirement is judged by combining a number of factors including characteristics of the remedial action, the hazardous substances in question, or the physical circumstances of the site with those addressed in the requirement. The origin and objective of the requirement may aid in the determination of relevance and appropriateness. A requirement judged to be relevant and appropriate must be complied with to the same degree as if it were applicable. However, more discretion may be used in the determination. Only part of the requirement may be considered relevant and appropriate and the rest dismissed if judged not to be relevant and appropriate in a given case. Once a requirement is determined to be relevant and appropriate, it must be complied with as if it were applicable.

"To Be Considered (TBC) Material" (TBCs) are non-promulgated advisories or guidance documents issued by federal or state governments. They do not have the status of ARARs but

Appendix D

2006 Keystone/VLSG Settlement Agreement

VALLEYCREST SETTLEMENT AGREEMENT

This SETTLEMENT AGREEMENT ("Settlement Agreement" or "Agreement") is made by and between Flowserve Corporation, The Standard Register Company, Cargill, Inc., General Motors Corporation, NCR Corporation, Kelsey-Hayes Company, and TRW Inc. (hereinafter the "VLSG Generator Group" or the "Generator Group"), Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation, SCA Services of Ohio, Inc., and Waste Management of Ohio, Inc. (hereinafter the "VLSG Operator Group" or the "Operator Group"), on the one hand, and **THE KEYSTONE GRAVEL COMPANY** ("Keystone") and **LMS INVESTMENTS, INC.** (the "Settling Parties"), on the other hand, by and through each entity's respective officers, attorneys, or representatives, as follows:

WHEREAS, the members of the VLSG Generator Group and the members of the VLSG Operator Group are, for purposes of this Agreement, the members of the Valleycrest Landfill Site Group (hereinafter the "VLSG"), and shall be referred to, along with the Settling Parties, as the "Parties" to this Agreement;

WHEREAS, the "Site" shall mean the North Sanitary Landfill Superfund Site, encompassing approximately 102 acres, located at 200 Valleycrest Drive in Dayton, Montgomery County, Ohio, and depicted more particularly on the map attached as Appendix A to the January 31, 1995 Director's Final Findings & Orders ("FF&Os") of the Ohio Environmental Protection Agency ("OEPA"), where the treatment, storage, and/or disposal of hazardous substances, and/or the discharge into waters of the state of industrial waste and/or other waste may have occurred, including any other area to which such hazardous substances, industrial wastes, and/or other wastes may have migrated from the Site;

WHEREAS, The Keystone Gravel Company ("Keystone") owns all or nearly all of the real property that makes up the Site;

WHEREAS, the lot numbers associated with the Site owned in fee simple interest by Keystone are 74599, 74600, 74603, 74604, 74618, 74619, 74620, 74621, 74622, 74623, 74624, 79327, 74633, 74634, 74635, and 74636;

WHEREAS, the Parties are alleged to be liable in tort and as potentially responsible parties ("PRPs") under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), as amended, 42 U.S.C. § 9601 et seq. with respect to the Site (a.k.a. "Valleycrest Landfill" or "Valleycrest");

WHEREAS, certain members of the VLSG and others executed with U.S. EPA an Administrative Order on Consent ("AOC") relating to the Site pursuant to which certain members of the VLSG performed a drum removal and continue to investigate and control landfill gas as required by the AOC;

WHEREAS, certain members of the VLSG executed with OEPA the FF&Os relating to the Site pursuant to which the VLSG is performing a remedial investigation/feasibility study ("RI/FS") as required by the FF&Os;

WHEREAS, certain members of the VLSG initiated a lawsuit (the "Contribution Action") against Keystone and others in the United States District Court for the Southern District of Ohio, Western Division, styled Cargill, Inc., et al. v. ABCO Construction, et al. (original Case No. C-3-98-36; subsequent Case No. C-3-98-3601), seeking to recover certain costs and expenses allegedly incurred and to be incurred by the members of the VLSG in connection with the Site;

WHEREAS, Keystone has denied and continues to deny all claims and allegations of liability whether by act, assumption of liability, merger or otherwise, alleged in the Contribution Action;

WHEREAS, the VLSG and Settling Parties desire to resolve their differences consensually, without further litigation, and without admitting any fact, responsibility, fault, or liability in connection with the Site; and

WHEREAS, Settling Parties, if found liable at Valleycrest, could be classified as a "owners" or an "operators" pursuant to Section 107(a)(1) or (2) of CERCLA, 42 USC 9607(a)(1) or (2).

NOW THEREFORE, in consideration of the premises and mutual covenants and agreements contained herein, the Parties hereto agree as follows:

1. Settlement Terms.

A. Settling Parties will pay Three Hundred Thousand Dollars (\$300,000.00) representing a cash payment to resolve a portion of Settling Parties' alleged liability for Response Costs incurred or to be incurred by the members of the VLSG individually and as a Group at the Site, except for any Natural Resource Damage claims, Toxic Tort claims, and/or any claims arising from this Settlement Agreement. In addition, Keystone shall cooperate with or take actions so as to effectuate the transfer of a fee simple interest in all of the lots numbered 74599, 74600, 74603, 74604, 74618, 74619, 74620, 74621, 74622, 74623, 74624, 79327, 74633, 74634, 74635, and 74636, situated in the City of Dayton, Ohio, to one or more persons or one or more entities as directed at some time in the future by the VLSG, thereby settling the remaining portion of Settling Parties' liability for Response Costs. Settling Parties shall not transfer, lease, convey or otherwise encumber Keystone's interest in the Site. The express intent and goal of the Settling Parties to this Agreement is that Keystone's interest in its entirety in the above-mentioned lots shall vest in the person(s) or entity(-ies) to whom said transfer is made. Keystone will provide to the VLSG at the time this Settlement Agreement is executed, a corporate resolution authorizing the cooperation with and/or the actions to be taken so as to effectuate the future transfer of the lots mentioned in this Paragraph 1.A. In addition, Keystone shall also provide authorization for such cooperation and/or such transfer by its shareholders including for the transfer pursuant to Ohio Revised Code § 1701.76. To the extent either of the Settling Parties owns any additional real property that is or becomes part of the NSL Site in the future, the intent of this Agreement is for the interest in any such property to also be transferred to the person(s) or entity (-ies) as set forth above.

B. A certified or cashier's check for Three Hundred Thousand Dollars (\$300,000.00) made payable to the "VLSG" shall be returned with the executed Settlement Agreement to:

Ms. Jodi L. Weaver
Dinsmore & Shohl LLP
255 East Fifth Street
Suite 1900
Cincinnati, Ohio 45202-4720

C. In consideration of the mutual performance of the obligations set forth in this Settlement Agreement, the members of the VLSG hereby release and waive any and all claims for Response Costs incurred or to be incurred by the members of the VLSG individually and as a Group relating to the Site, including any claims for Response Costs under Sections 107 or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, Section 7002 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6972, or under similar state law arising from or relating to the Site, as against the Settling Parties. Further, the members of the VLSG covenant to dismiss Keystone from the Contribution Action. Said dismissal is with prejudice except as to Toxic Tort claims, Natural Resource Damages claims and any claims arising from this Settlement Agreement. In addition, the members of the VLSG, in consideration of the undertakings set forth in this Settlement Agreement, and upon the effective date of this Settlement Agreement, individually and as a group, finally and fully release and discharge Settling Parties from any and all legal and equitable actions and causes of action for all Response Costs incurred or to be incurred by the members of the VLSG individually and as a Group, whether past or future, associated with the Site, and whether said causes of action are now known or unknown, except for any claims which would arise from any Toxic Tort claim(s), any Natural Resource Damage claims and any claims arising from this Settlement Agreement. Settling Parties' successors in interest, assigns, officers, directors, employees and shareholders shall receive the same release and discharge as are applicable to Settling Parties.

D. In consideration of the mutual performance of the obligations set forth in this Settlement Agreement, and subject to each Party's compliance with the terms of the Settlement Agreement contained herein, the VLSG on the one hand, and Settling Parties, on the other hand, covenant not to sue each other for any and all Response Costs incurred or to be incurred by the members of the VLSG individually and/or as a Group arising from the Site, including any claims for Response Costs under Sections 107 or 113 of CERCLA, and Section 7002 of RCRA, arising from or relating to the Site, or state law claims arising from the Site. Covenants not to sue shall also apply as between the VLSG on the one hand, and Settling Parties' successors in interest, assigns, officers, directors, employees and shareholders, on the other hand. Keystone shall dismiss any claims already filed as cross-claims against other Defendants or as counterclaims against the members of the VLSG. Said dismissal is with prejudice except as to Toxic Tort claims, Natural Resource Damages claims and any claims arising from this Settlement Agreement. Nothing in this paragraph affects or governs the lawsuit between Waste Management and Danis. Further, the covenants not to sue contained in

this paragraph do not apply to any claims for Natural Resource Damages, Toxic Torts, or to claims arising from this Settlement Agreement.

E. Settling Parties covenant that they will not sue any other PRPs at the Site to recover any payment(s) made pursuant to this Settlement Agreement.

F. Nothing in this Settlement Agreement shall be construed to release any persons other than Settling Parties from any liability that they may have with respect to the Site. However, Settling Parties' successors in interest, assigns, officers, directors, employees and shareholders shall receive the same releases as applicable to Settling Parties. The only persons intended to receive any benefits under this Settlement Agreement are the Parties to this Agreement, their respective assigns, officers, directors, employees, shareholders, and successors in interest as limited herein, none other.

G. Except as expressly provided in this Settlement Agreement, the Parties hereto expressly reserve all rights, claims, and defenses that they may have with respect to the Site, or relating to costs incurred or to be incurred in connection with the Site not covered by this Settlement Agreement, including without limitation, rights and claims with respect to their respective insurers, all sums recovered as well as costs associated with any Natural Resource Damages claims, Toxic Tort claims related to the Site, and/or claims arising from this Settlement Agreement.

H. "Response Costs" means all costs of "response," as that term is defined in 42 U.S.C. § 9601(25), with respect to the Site, and shall include past and future RI/FS costs, past and future FF&O costs, past and future drum removal costs, past and future removal costs and any future remedial design/remedial action ("RD/RA") costs associated with the Site, whether arising from Sections 106, 107 or 113 of CERCLA, Section 7002 of RCRA or similar state law claims arising from the Site and any related expenditures relating to investigation and attorneys', experts' and consultants' fees and expenses, but shall exclude costs associated with Natural Resource Damage claims, Toxic Tort claims, or any claims arising from this Settlement Agreement.

I. "Natural Resource Damage" claims are those claims arising pursuant to the liability set forth in CERCLA § 107(a)(4)(C), 42 U.S.C. § 9607(a)(4)(C).

J. "Toxic Tort" claims are those claims brought by individuals or classes of individuals alleging personal injuries and/or property damage caused by exposure to, *inter alia*, toxic, hazardous, or other dangerous substances at or migrating from the Site.

K. Settling Parties hereby agree that they waive any right to object to any allocation of liability for Response Costs at the Site, which has been or will be agreed to by the members of the VLSC.

2. **Signatures.** Each undersigned representative of Settling Parties and the members of the VLSC represents, certifies, and warrants that he or she is fully

authorized to enter into the terms of this Settlement Agreement and to execute and legally bind such Party to this Settlement Agreement and its terms and conditions.

3. Assignment Of Claims Against Generators. Excluding rights, claims or causes of action arising out of insurance, Settling Parties hereby assign to the VLSG Generator Group, individually and collectively, all rights, claims or causes of action arising from Settling Parties' incurrence of Response Costs as alleged generators, including without limitation, claims or causes of action for contribution against any third party who is potentially responsible for Response Costs at the Site pursuant to Section 107(a)(3) of CERCLA, 42 U.S.C. §9607(a)(3), except to those causes of action related to toxic tort claims or natural resource damages.

4. Assignment Of Claims Against Owner/Operator/Transporters. Excluding rights, claims or causes of action arising out of insurance, Settling Parties hereby assign to the VLSG Operator Members, individually and collectively, all other rights, claims or causes of action arising from Settling Parties' incurrence of Response Costs, as alleged "owners," "operators" and/or "transporters" including without limitation, claims or causes of action for contribution, as against any third party who is potentially responsible for Response Costs at the Site as an owner of or operator at the Site, or as a transporter of hazardous substances to the Site, pursuant to Sections 107(a)(1), (2) and (4) respectively, of CERCLA, 42 U.S.C. §§9607(a)(1), (2) and (4), except to those causes of action related to toxic tort claims or natural resource damages.

5. Agreement to Execute Consent Decree, AOC, and/or FF&O. It is anticipated that in the future, one or more Consent Decrees, Administrative Orders by Consent ("AOC") and/or Findings of Fact & Orders ("FF&Os") will be negotiated with U.S. EPA and/or Ohio EPA pursuant to which one or more of the current Plaintiffs (to be known as "performing parties" or similar in said Consent Decree, AOC, and/or FF&O) will perform or undertake a RD/RA at the Site, or perform such other response or removal actions as are agreed to in said Consent Decree, AOC and/or FF&O. During negotiations for such a Consent Decree, AOC or FF&O, Plaintiffs negotiating with either the U.S. EPA or Ohio EPA will request and use their best efforts to have U.S. EPA or Ohio EPA allow Settling Parties to execute the Consent Decree, AOC or the FF&O as a "buyout parties." Plaintiffs will request that U.S. EPA and/or Ohio EPA consider "buyout parties" as those parties who have settled their liability at the Site with "performing parties," and therefore should have all the protections afforded by the Consent Decree, AOC or the FF&O just as though the "buyout party" were actually performing the remedial or other action, such protections including but not limited to contribution protection from any party to this litigation and/or from any third party not now a party to this litigation. Plaintiffs will request that U.S. EPA and/or Ohio EPA consider "performing parties" to be those parties who will perform the remedial action using their own funds as well as the funds received from "buyout parties" pursuant to the terms of this Settlement Agreement. Settling Parties agree to execute the Consent Decree, AOC or FF&O negotiated by the VLSG provided that Settling Parties' obligations under such Consent Decree, AOC or FF&O are the responsibility of the performing parties pursuant to this Agreement, and Settling Parties have no obligations under such Consent Decree, AOC or FFO beyond those in this Settlement Agreement, and as long as

Settling Parties do not have to contribute any additional payment to the VLSG or any member of the VLSG, U.S. EPA and/or Ohio EPA in order to execute the Consent Decree, AOC or FF&O.

6. Document Retention, Agreement to Provide Information and Cooperation. Settling Parties agree to retain all documents relating to the Valleycrest Landfill for a period of fifteen (15) years from the date of the execution of this Agreement by Settling Parties, or, alternatively, such longer period as may be required by any Consent Decree, AOC, or FF&O that may be entered into by Settling Parties in accordance with Paragraph 5 hereof. Settling Parties and their officers and shareholders further agree to cooperate with members of the VLSG in connection with any contribution or other claims the VLSG or any of its members have brought or may bring against any other entity, and in the defense of any such claims as might be brought against the VLSG or any of its members. Such cooperation shall include, but not be limited to, reasonable efforts by Settling Parties and their officers, shareholders and employees to assist counsel with relevant information and file review in order to respond to discovery pursuant to the Federal Rules of Civil Procedure and Orders of the Court. Cooperation by Settling Parties shall also include providing deposition and/or trial testimony, when applicable, as well as contacting former employees whenever possible to enlist their help in providing relevant information, including documents, to counsel retained by the VLSG, and making available employees, and where possible, former employees, to counsel retained by the VLSG to help defend and or prosecute contribution or other claims. Settling Parties also agree to cooperate with the VLSG in order to reduce or eliminate back taxes on all of the parcels listed in Paragraph 1.A as well as taxes that have not yet been assessed on the parcels.

7. Certification. In executing this Agreement, each Party to this Agreement certifies that, to the best of its knowledge, it has disclosed all known, relevant, non-privileged information and has produced all known, relevant, non-privileged documents within the Party's possession, custody or control regarding the Settling Parties' relevant direct and/or indirect transactions with regard to the Site, and to Settling Parties' liability at the Site, as required in response to discovery. Settling Parties further certify that they have not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to their potential liability relating to the Site after notification of potential liability, or the filing of a suit against Keystone regarding this Site. In addition, Keystone certifies that, to the best of its knowledge, it has fully complied with any and all discovery requests propounded by Plaintiffs in this action, and with any other requests for information submitted by, but not limited to, US EPA and Ohio EPA, as they relate to this Site. By making this Certification, Keystone does not make any admission of any kind relating to the Site. In addition, Settling Parties certify that they have an ability to pay problem with the demand placed upon Keystone by Plaintiffs, and agree that Plaintiffs took their ability to pay into consideration when plaintiffs agreed to the settlement amount. The Parties to this Agreement agree that they will not assert that this provision is invalid or unenforceable.

8. Denial of Liability. This Settlement Agreement shall not constitute, be interpreted as, or be construed as evidence of any admission of liability, law or fact, a

waiver of any right or defense by Settling Parties or by any member of the VLSG Generator Group or the VLSG Operator Group except as specifically set forth in this Settlement Agreement. However, nothing in this Section is intended or should be construed to limit, bar or otherwise impede the enforcement of any term or condition of this Settlement Agreement against Settling Parties or against the VLSG .

9. Insurance. The Parties to this Settlement Agreement do not intend hereby to make any agreement that will prejudice any VLSG Member or Settling Parties with respect to its insurers and, by entering into this Settlement Agreement, anticipate that the actions taken pursuant to this Settlement Agreement will benefit such insurers.

10. Successors and Assigns. This Settlement Agreement shall be binding upon the successors and assigns of the Parties hereto. No assignment or delegation of the obligation to make any payment or reimbursement hereunder will release the assignor without the prior written consent of the VLSG.

11. Advice of Counsel. Each Party represents that it has sought and obtained the legal advice it deems necessary prior to entering into this Settlement Agreement.

12. Notice. All notices, bills, invoices, reports and other communications with Settling Parties shall be sent to the representative designated by each of the Settling Parties on said Settling Party's Notification Page. Settling Parties shall have the right to change their representatives upon submission of written notice to the VLSG. Communications from Settling Parties to the VLSG, its members, or Groups shall be addressed to:

Vincent B. Stamp, Esq.
Common Counsel to the VLSG
Dinsmore & Shohl LLP
255 East Fifth Street
Suite 1900
Cincinnati, Ohio 45202

13. Effective Date. The effective date of this Settlement Agreement shall be the date it is executed by all of the representatives of the all of the members of the VSLG.

14. Separability. If one or more of the Paragraphs 1.A, 1.C, 1.D, 1.F, 5, 6 or 7 is deemed invalid or unenforceable, the entire Settlement Agreement shall be terminated and deemed void and of no further force or effect. If any provision of this Settlement Agreement other than Paragraphs 1.A, 1.C, 1.D, 1.F, 5, 6 or 7 is deemed invalid or unenforceable, the balance of this Settlement Agreement shall remain in full force and effect.

15. Entire Agreement. This Settlement Agreement constitutes the entire agreement and understanding between members of the VLSG and the Settling Parties with respect to its subject matter, and no modification shall be effective unless it is in

writing, and executed by all of the authorized representatives of the VLSG members and of the Settling Parties.

16. Legal Construction. This Agreement shall be construed under the laws of the State of Ohio. Any title or caption to a section or paragraph contained herein is for convenience only, and shall not be deemed a part hereof.

17. Judicial Approval. The Parties hereto agree to jointly move the Court for the entry of an Order pursuant to a Joint Motion for Approval of this Valleycrest Settlement Agreement. This Settlement Agreement is contingent upon entry of an Order that grants the Parties' Joint Motion for Approval of the Settlement Agreement, and that specifically provides that the Court discharge and/or bar all past, present and future counterclaims, cross-claims, and other claims relating to the Site and the subject matter of this litigation, which have been made or could be made against Keystone by any person whether a party to this action or not, except for any Toxic Tort claim(s), any Natural Resource Damages or any claim arising from this Settlement Agreement. Should such an Order not be entered, and the Parties hereto fail to agree otherwise, Settling Parties will be entitled to reimbursement of any settlement payments plus any accumulated interest, and the Settlement Agreement shall be null and void.

18. Distribution of Funds from Escrow. Upon approval by the Court of the Joint Motion for Approval of this Valleycrest Settlement Agreement, the settlement amount plus any accumulated interest, shall be released to the VLSG. In the event that the Joint Motion for Approval of this Settlement Agreement is rejected by the Court, and the Parties fail to agree otherwise, the \$300,000.00 in escrow, plus any accumulated interest, shall be returned to Settling Parties.

19. Execution of Agreement. Settling Parties shall signify their consent and intent to enter into this Settlement Agreement by delivering a completed and signed Settlement Agreement and the cash payment pursuant to Paragraph 1.B to:

Ms. Jodi L. Weaver
Dinsmore & Shohl LLP
255 East Fifth Street
Suite 1900
Cincinnati, Ohio 45202-4720

20. Counterpart Execution. This Agreement may be executed in any number of counterparts with the same effect as if the parties hereto had signed the same document. All counterparts will be construed together and shall constitute one agreement.

21. Consideration and Breach. The parties agree that the execution and performance of the obligations of this Settlement Agreement are consideration for this Settlement Agreement, and nothing contained herein shall be construed in any way to preclude any Party from asserting a claim for any breach of this Settlement Agreement. Plaintiffs may enforce the terms of this Settlement Agreement, or a breach thereof, in any manner authorized by common law and/or statutory law. The Parties specifically

agree that a breach of Keystone's obligation to transfer each and every lot as set forth in Paragraph 1.A of this Agreement would result in a material and irreparable injury to the VLSG for which there is no adequate remedy at law, and would require a remedy of specific performance, including but not limited to specific performance as to the transfer of the Keystone property identified as lot numbers 74599, 74600, 74603, 74604, 74618, 74619, 74620, 74621, 74622, 74623, 74624, 79327, 74633, 74634, 74635, and 74636 in Paragraph 1.A above.

22. Relationship of the Parties. This Settlement Agreement does not create, and shall not be construed to create, any agency, joint venture, or partnership relationship(s) between or among the Parties.

23. Access to the Property. The Keystone Gravel Company executed an Access Agreement with the members of the VLSG on October 10, 1996. The Settling Parties agree that this Access Agreement will be amended and restated as shown in Ex. A hereto. Keystone agrees that it will execute the Amended and Restated Access Agreement and provide same to the VLSG pursuant to this Settlement.

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

J. Nelson
On Behalf of Settling Parties

Date

On Behalf of General Motors Corporation

Date

On Behalf of Northrop Grumman Space and Mission Systems Corporation, f.k.a. TRW Inc.

Date

On Behalf of Kelsey-Hayes Company

Date

On Behalf of Cargill, Inc.

Date

On Behalf of NCR Corporation

Date

On Behalf of The Standard Register Company

Date

On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

April 13, 2006
Date

Date

Date

Date

Date

Date

Date

J. R. Wall
On Behalf of Settling Parties

James P. Wall
James P. Wall - Attorney
On Behalf of General Motors
Corporation

On Behalf of Northrop Grumman
Space and Mission Systems
Corporation, f.k.a. TRW Inc.

On Behalf of Kelsey-Hayes
Company

On Behalf of Cargill, Inc.

On Behalf of NCR Corporation

On Behalf of The Standard
Register Company

On Behalf of Diversified
Environmental Management Co.,
successor in merger to Diversified
Industries Corporation, fka Danis
Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

[Signature]
On Behalf of Settling Parties

Date

On Behalf of General Motors Corporation

4/17/06
Date

Kathleen M. Salzman
On Behalf of Northrop Grumman Space and Mission Systems Corporation, f.k.a. TRW Inc.

Date

On Behalf of Kelsey-Hayes Company

Date

On Behalf of Cargill, Inc.

Date

On Behalf of NCR Corporation

Date

On Behalf of The Standard Register Company

Date

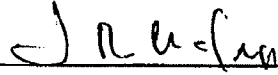
On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06

Date



On Behalf of Settling Parties


Date

On Behalf of General Motors Corporation

Date

On Behalf of Northrop Grumman Space and Mission Systems Corporation, f/k.a. TRW Inc.

Date



David L. Biskovsky, Vice President
On Behalf of Kelsey-Hayes Company

Date

On Behalf of Cargill, Inc.

Date

On Behalf of NCR Corporation

Date

On Behalf of The Standard Register Company

Date

On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

[Signature]
On Behalf of Settling Parties

Date

On Behalf of General Motors Corporation

Date

On Behalf of Northrop Grumman Space and Mission Systems Corporation, f.k.a. TRW Inc.

Date

On Behalf of Kelsey-Hayes Company

5/5/04
Date

[Signature]
On Behalf of Cargill, Inc.

Date

On Behalf of NCR Corporation

Date

On Behalf of The Standard Register Company

Date

On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

[Signature]
On Behalf of Settling Parties

Date

On Behalf of General Motors Corporation

Date

On Behalf of Northrop Grumman Space and Mission Systems Corporation, f.k.a. TRW Inc.

Date

On Behalf of Kelsey-Hayes Company

Date

On Behalf of Cargill, Inc.

April 19, 2006
Date

[Signature]
On Behalf of NCR Corporation *Sin J. [unclear] [unclear]*

Date

On Behalf of The Standard Register Company

Date

On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

J. R. K. (signature)
On Behalf of Settling Parties

Date

On Behalf of General Motors Corporation

Date

On Behalf of Northrop Grumman Space and Mission Systems Corporation, f.k.a. TRW Inc.

Date

On Behalf of Kelsey-Hayes Company

Date

On Behalf of Cargill, Inc.

Date

On Behalf of NCR Corporation

Date

R. H. (signature)
On Behalf of The Standard Register Company

Date

On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

SETTLEMENT AGREEMENT SIGNATORY PAGE

Settling Party, The Keystone Gravel Company and LMS Investments, Inc., hereby enter into and shall participate in the Settlement Agreement described and set forth herein.

4-3-06
Date

[Signature]
On Behalf of Settling Parties

Date

On Behalf of General Motors Corporation

Date

On Behalf of Northrop Grumman Space and Mission Systems Corporation, f.k.a. TRW Inc.

Date

On Behalf of Kelsey-Hayes Company

Date

On Behalf of Cargill, Inc.

Date

On Behalf of NCR Corporation

Date

On Behalf of The Standard Register Company

4/15/06
Date

[Signature]
On Behalf of Diversified Environmental Management Co., successor in merger to Diversified Industries Corporation, fka Danis Industries Corporation

ROBERT L. ROBERTS JR.
Associate General Counsel
Flowserve Corporation

APRIL 13, 2006
Date

R L Roberts Jr
On Behalf of Flowserve
Corporation


Date

On Behalf of Waste Management
of Ohio, Inc.

Date

28 April 06
Date

On Behalf of Flowserve
Corporation


On Behalf of Waste Management
of Ohio, Inc.

Appendix E

**Draft Environmental Covenant Amendment for
Keystone Affected Property**

ENVIRONMENTAL COVENANT AMENDMENT

WHEREAS, The Keystone Gravel Company (“Keystone”) owns fourteen parcels of real property, which are listed in Attachment A, that collectively cover approximately 102 acres in the City of Dayton, Ohio (“Property”);

WHEREAS, the Property is a former sand and gravel quarry that was used in the past for the disposal of commercial, industrial, municipal, and other types of waste;

WHEREAS, the U.S. Environmental Protection Agency designated the Property, and other adjoining properties, as the North Sanitary (aka “Valleycrest”) Landfill Superfund Site (“Site”) and placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on May 31, 1994, 59 Fed. Reg. 27989;

WHEREAS, EPA issued a final Record of Decision (“ROD”) on August 16, 2013, selecting a remedial action to address contamination at the Site by, among other things, installing a solid waste “cap” in accordance with Ohio Administrative Code 3745-27-08 over a portion of the Site;

WHEREAS, the EPA-selected remedial action will be implemented by a group of companies (“Settling Work Parties”) pursuant to a Consent Decree, which was entered by the Federal District Court for the Southern District of Ohio (“Court”) on the 30th day of October, 2018 and docketed as United States v. Bridgestone Americas Tire Operations, LLC et al., Civil Action No. 3:18-cv-00054 (S.D. Ohio) (*hereinafter* “Consent Decree”);

WHEREAS, the entities that comprise the Settling Work Parties are also members of the Valleycrest Landfill Site Group (“VLSG”), which is the holder of an Environmental Covenant at Attachment B pertaining to the Property (“Original Environmental Covenant”);

WHEREAS, the Original Environmental Covenant was entered into by Keystone (“Owner”), the VLSG (“Holder”), and Ohio Environmental Protection Agency (“Ohio EPA”) on July 18, 2007 for the purpose of, among other things, subjecting the Property to certain activity and use limitations pursuant to Ohio Revised Code (“ORC”) §§ 5301.80 to 5301.92;

WHEREAS, the Consent Decree requires, among other things, that the Settling Work Parties obtain an amendment of the Original Environmental Covenant that shall:

(1) limit the use of the Property to include all of the restrictions set forth in Paragraph 25 (Land, Water, or Other Use Restrictions) of the Consent Decree that are included within the Institutional Controls Implementation and Assurance Plan (“ICIAP”) approved by EPA in accordance with Section 6 (Deliverables) of the SOW, which is attached at Appendix B to the Consent Decree;

(2) provide EPA and its representatives, contractors, and subcontractors, with access at all reasonable times to the Keystone Affected Property for the purpose of conducting any activity regarding the Consent Decree, including those activities listed in Paragraph 24 (Access Requirements) that are included within the EPA-approved ICIAP; and

(3) grant to EPA the right to seek judicial enforcement of the Amended EC against Keystone and all future owners or transferees of the Keystone Affected Property;

WHEREAS, the Original Environmental Covenant provides under Paragraph 12 that it may be amended only by written consent of (1) the Owner or a Transferee, (2) the Holder, and (3) Ohio EPA, and that such amendment shall be pursuant to ORC § 5301.90 and other applicable law;

WHEREAS, in 2011, the Secretary of State for the State of Ohio cancelled the Articles of Incorporation for Owner due, among other things, to the Owner's failure to pay certain taxes within the time period prescribed by law;

WHEREAS, based upon a search conducted by the Settling Work Parties, there are no known surviving officers or directors who may act on behalf of Owner, nor are there any known corporate successors of Owner, and

WHEREAS, . . . *[Settling Work Parties shall insert additional "whereas" clauses, as appropriate, to explain steps taken to allow the Original Environmental Covenant to be amended in accordance with the requirements of ORC § 5301.90 and Paragraph 20(a)(1) of the Consent Decree]*

NOW THEREFORE, Owner *[Settling Work Parties shall omit "Owner" if amendment will not require signature by Keystone]*, Holder, Ohio EPA, and EPA agree to the following:

1. Amended Environmental Covenant. This instrument is an Environmental Covenant executed, amended, and delivered pursuant to §§ 5301.80 to 5301.92 of the ORC. Except as specifically provided herein, the terms and conditions of the Original Environmental Covenant at Attachment B, remain unaltered and in full effect after the Effective Date of this instrument ("Amended Environmental Covenant"). Specifically, this Amended Environmental Covenant maintains, and incorporates by reference, Paragraphs 6 (Running with the Land), 7 (Compliance Enforcement), 11 (Representations and Warranties), and 13 (Severability) of the Original Environmental Covenant.
2. Property. This Amended Environmental Covenant concerns approximately 102 acres of real property in City of Dayton, Montgomery County, Ohio, and more particularly described in Attachment A.
3. Owner. The Keystone Gravel Company, a former Ohio Corporation, is the owner of the Property. *[Settling Work Parties shall insert additional information to describe the current legal status of Keystone. For instance, if a receiver is appointed for Keystone, the receiver's address and information should be included here.]*

4. Holder. The Valleycrest Landfill Site Group, whose members consist of the Settling Work Parties identified in Appendix D of the Consent Decree, is the Holder of this Environmental Covenant. The Settling Work Parties, who are members of Holder, are:

- Bridgestone Americas Tire Ops., LLC
- Cargill, Inc.
- Flowserve Corporation
- NCR Corporation
- Northrop Grumman Corporation
- Waste Management of Ohio, Inc.
- Kelsey-Hayes Company

5. Activity and Use Limitations,

a. Land Use Restrictions. The Property shall not be used for Residential Uses and Other Prohibited Uses. The term “Residential Uses and Other Prohibited Uses” means: (i) single and multi-family dwellings and transient residential units; (ii) occupancy on a 24-hour basis; (iii) uses to house, educate, or provide care for children, the elderly, the infirm, or other sensitive subpopulations; and (iv) agricultural uses. The Property shall also not be used in any manner that would interfere with or adversely affect the integrity or protectiveness of the Remedial Action which has been implemented or which will be implemented pursuant to the Consent Decree unless the written consent of the EPA to such use is first obtained. Further, no Waste Material shall be brought onto the Property, except in accordance with any federal, state or local permit or the Consent Decree.

b. No Interference with Cover. Except as provided in a plan approved in writing by EPA, the following activities are prohibited in any cover installed pursuant to the requirements of the Consent Decree: 1) any excavation or other intrusive activity that could affect the integrity of the cover; and 2) any disturbance of the materials underneath the cover.

c. Groundwater Restrictions. Except as required as part of an EPA approved activity, or upon written certification by EPA that all applicable performance standards have been met, construction of wells and activities that extract, consume, or otherwise use any groundwater are prohibited on the Property.

d. Restrictions on Construction. Construction over areas where a vapor intrusion pathway may occur is prohibited unless such construction includes adequate mitigation measures for the vapors, as demonstrated in a plan approved in writing by EPA.

e. Fencing and Security. Fences and signs to secure the Property shall be maintained until the written consent of the EPA is obtained to modify such features.

f. *[Settling Work Parties shall insert any other restrictions set forth in Paragraph 25 (Land, Water, or Other Use Restrictions) of the Consent Decree that are included within the Institutional Controls Implementation and Assurance Plan (“ICIAP”) approved by EPA in accordance with Section 6 (Deliverables) of the SOW, which is attached at Appendix B to the Consent Decree]*

6. Requirements for Notice to EPA before Transfer of a Specified Interest in, or Concerning Proposed Changes in the Use of, Applications for Building Permits for, or Proposals for any Work Affecting Contamination on the Property. Neither Owner nor Holder (nor any member of the Holder) shall transfer any interest in the Property or make proposed changes in the use of the Site, or make applications for building permits for, or proposals for any work in the Site without first providing notice to EPA and obtaining any approvals or consents thereto which are required under Sections V (General Provisions), VI (Performance of Work), VII (Remedy Review), VIII (Property Requirements), XIII (Notices and Submissions) or Appendix B (Statement of Work) of the Consent Decree.

7. Access to the Site. EPA, Ohio EPA, and the Settling Work Parties (listed in paragraph 4 above), their successors and assigns, and their respective officers, employees, agents, contractors and other invitees (collectively “Access Grantees”) shall each have unrestricted right of access to the Property to undertake the Permitted Uses described in Paragraph 8 below and, in connections therewith, to use all roads, drives and paths, pave or unpaved, located on the Property for ingress to or egress from portions of the Property (collectively “Access Roads”). The right of access granted under this Paragraph 8 shall be irrevocable while this Covenant remains in full force and effect.

8. Permitted Uses. The right of access granted under Paragraph 7 of this Amended Environmental Covenant shall provide Access Grantees with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to the Consent Decree or the purchase of any part of the Property, including, but not limited to, the following activities:

- a. Monitoring the “Work,” as defined under Paragraph 4.ss of the Consent Decree;
- b. Verifying any data or information submitted to the United States;
- c. Conducting investigations regarding contamination at or near the Site;
- d. Obtaining samples;
- e. Assessing the need for, planning, or implementing additional response actions at or near the Site;
- f. Assessing implementation of quality assurance and quality control practices as defined in the approved construction quality assurance quality control plan as provided in Appendix B (Statement of Work) of the Consent Decree;
- g. Implementing the Work pursuant to the conditions set forth in Paragraph 76 (Work Takeover) of the Consent Decree;

- h. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Work Parties or their agents, consistent with Section XIX(Access to Information) of the Consent Decree;
- i. Assessing compliance with the Consent Decree by Settling Parties, as defined in Paragraph 4.hh of the Consent Decree;
- j. Determining whether the Property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Consent Decree; and
- k. Implementing, monitoring, maintaining, reporting on, and enforcing any Institutional Controls, as defined under Paragraph 4.k of the Consent Decree.

9. Administrative Record. The Consent Decree constitutes an environmental response project as defined by ORC § 5301.80(E) and authorizes and requires certain remedial action to be taken by the Settling Work Parties. As described in the fourth “whereas” clause at the beginning of this instrument, EPA issued on August 16, 2013, a ROD which set forth EPA’s determination of the appropriate remedial action to be implemented at the Site to address Site contamination. Copies of the EPA administrative record supporting the ROD are maintained at the following locations: EPA Region 5, Superfund Records Center (7th Floor), 77 W. Jackson, Chicago, Illinois 60604 and at the Ohio EPA Southwest District Office, 401 East Fifth Street, Dayton, Ohio, 45402.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations, and grants of access set forth in this Amended Environmental Covenant, and provide the recorded location of this Amended Environmental Covenant. For instruments conveying any interest in the Site or any portion thereof, the notice shall be substantially in the form set forth in Attachment C.

11. Amendments; Early Termination. This Amended Environmental Covenant may be amended or terminated by [*Settling Work Parties shall insert procedures that comply with ORC §5301.90*]. Any future changes to this Amended Environmental Covenant shall be recorded in the Office of the Recorder of Montgomery County, Ohio. Upon transfer of all or any portion of the Property, Owner waives any rights that it might otherwise have under Section § 5301.90 of the ORC to withhold its consent to any amendments, modifications, or termination of this Amended Environmental Covenant, to the extent that it has transferred its interest in that portion of the Property affected by said modification, amendment or termination. The rights of Owner’s successors in interest as to a modification, amendment or termination of this Environmental Covenant are governed by the provisions of Section § 5301.90 of the ORC.

12. Other Matters.

a) Future Cooperation; Execution of Supplemental Instruments. This Amended Environmental Covenant does not require the future cooperation of Owner for the purpose of executing supplemental instruments, provided that such instruments are agreed to in writing by EPA, Ohio EPA, and the Holder. The Holder shall cooperate by agreeing to execute and deliver such further documents as may be requested by EPA and/or Ohio EPA to supplement or confirm the rights granted hereunder.

b) Cumulative Remedies; No Waiver. All of the rights and remedies set forth in this Amended Environmental Covenant or otherwise available at law or in equity are cumulative and may be exercised without regard to the adequacy of, or exclusion of, any other right, remedy or option available hereunder or under the Consent Decree or at law. The failure to exercise any right granted hereunder, to take action to remedy any violation by Owner, or future owners of the Property, of the terms hereof or to exercise any remedy provided herein shall not be deemed to be a waiver of any such right or remedy and no forbearance on the part of EPA and no extension of the time for performance of any obligations of Owner, or future owners of the Property, hereunder shall operate to release or in any manner affect EPA's rights hereunder.

c) Recordation. Within thirty (30) days after the date of the final required signature upon this Amended Environmental Covenant, Holder shall cause this Amended Environmental Covenant to be recorded, in the same manner as a deed to the Property, with the Montgomery County Recorder's Office.

d) Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Site with the Montgomery County Recorder.

e) Distribution of Environmental Covenant. The Holder shall cause a file-stamped and date-stamped copy of the recorded Environmental Covenant to be distributed to EPA, Ohio EPA, Montgomery County, and each person holding a recorded interest in the Property.

f) Notices. All notices, requests, demands or other communications required or permitted under this Amended Environmental Covenant shall be given in the manner and with the effect set forth in the Consent Decree.

g) Governing Law. This Amended Environmental Covenant shall be construed according to and governed by the laws of the State of Ohio and the United States of America.

h) Captions. All paragraph captions are for convenience of reference only and shall not affect the construction of any provision of this Environmental Covenant.

IN WITNESS WHEREOF, Owner has executed and delivered this Amended Environmental Covenant as of the date first above written.

[Note: Omit this signature if instrument can be amended in accordance with ORC 5301.90 without need of Owner's signature]

OWNER

STATE OF OHIO)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20__, by _____.

Notary Public

IN WITNESS WHEREOF, EPA has executed and delivered this Amended Environmental Covenant as of the date first above written.

EPA

By:_____

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this_____day of _____, 20__, by _____, Superfund Division, Region 5 of the United States Environmental Protection Agency, on behalf of the United States of America.

Notary Public

IN WITNESS WHEREOF, Ohio EPA has executed and delivered this Amended Environmental Covenant as of the date first above written.

OHIO EPA

By:_____

STATE OF OHIO)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20__, by _____.

Notary Public

IN WITNESS WHEREOF, Ohio EPA has executed and delivered this Amended Environmental Covenant as of the date first above written.

HOLDER

By: _____

STATE OF OHIO)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20__, by _____.

Notary Public

ATTACHMENT A

Legal Description of Property

The 103-acre Keystone Affected Property is owned by The Keystone Gravel Company (Keystone) and LMS Investments, Inc. (LMS, an affiliate of Keystone), and consists of the following 14 parcels and 16 corresponding City of Dayton lots:

<u>Parcel Number</u>	<u>Corresponding Lot Number(s)</u>	<u>Owner</u>
<u>R72-16703-0016</u>	<u>74599</u>	<u>Keystone</u>
<u>R72-16703-0017</u>	<u>74603</u>	<u>Keystone</u>
<u>R72-16703-0018</u>	<u>74600</u>	<u>LMS</u>
<u>R72-16703-0021</u>	<u>74604</u>	<u>Keystone</u>
<u>R72-16704-0004</u>	<u>74624</u>	<u>Keystone</u>
<u>R72-16704-0005</u>	<u>74618, 74620, 74622</u>	<u>Keystone</u>
<u>R72-16704-0011</u>	<u>74619</u>	<u>Keystone</u>
<u>R72-16704-0012</u>	<u>74621</u>	<u>Keystone</u>
<u>R72-16704-0014</u>	<u>74623</u>	<u>Keystone</u>
<u>R72-16704-0049</u>	<u>74634</u>	<u>Keystone</u>
<u>R72-16704-0051</u>	<u>74633</u>	<u>Keystone</u>
<u>R72-16704-0055</u>	<u>74635</u>	<u>Keystone</u>
<u>R72-16704-0064</u>	<u>74636</u>	<u>Keystone</u>
<u>R72-16714-0023</u>	<u>79327</u>	<u>Keystone</u>

~~Settling Work Parties shall insert a legal description of Property, including the lot numbers listed in the Original Environmental Covenant, the parcel numbers listed in Paragraph 20.a of the Consent Decree, and any update of the surveys performed by Settling Work Parties under Paragraph 20.a(3) of the Consent Decree~~

A survey of the Keystone Affected Property was performed in March 2019 per CD Paragraph 20.a.(3). The results of that survey are included in this Attachment A.



Description of
North Sanitary Valleycrest Landfill
Valleycrest Drive
Dayton, Ohio
Containing 102.98 acres

June 7, 2019

Situate in the Sections 30 and 36, Town 2, Range 7 MRS., Between The Miami's, City of Dayton, County of Montgomery, State of Ohio and being all of Lots 74599, 74600, 74603, 74604, 74618-74624, 74633-74636, and 79327 (all references to Lots refer to the revised and consecutive numbers of lots on the Plat of said City of Dayton, Ohio, unless noted otherwise) and being more particularly bounded and described as follows:

Beginning at a mag nail (set) at the intersection of the centerline of Brandt Street (66 Foot Right of Way), as it now exists and the northerly line of said Lot 74599, said northerly line of Lot 74599 also being the northerly line of a parcel of land as recorded in Deed Book 129, Page 242. (all references to deeds, microfiche, plats, surveys, etc. refer to the records of the Montgomery County Recorder's Office, unless noted otherwise);

Thence South eighty-five degrees forty-eight minutes fifty-one seconds East (S85°48'51"E) along said northerly line of Lot 74599 and also along the northerly line of said Lots 74618 and 74619 a distance of one thousand four hundred fifty-one and 48/100 feet (451.48') to an iron pipe (found) at the intersection with the centerline of Valleycrest Drive (49.50 Foot Right of Way), as it now exists, said point of intersection also being the northwesterly corner of said Lot 74633;

Thence South eighty-four degrees forty-one minutes twelve seconds East (S84°41'12"E) along the northerly line of said Lots 74633, 74635, 74636 and 79327 a distance of one thousand one hundred ninety-five and 84/100 feet (1195.84') to an iron rod (set) at the westerly line of Lot 79326;

Thence South five degrees seventeen minutes five seconds West (S05°17'05"W) along said westerly line of Lot 79326 and also along the westerly plat line of Avon Square as recorded in Plat Book 94, Page 9 and also along the westerly line of Lot 74637 a distance of six hundred twenty-three and 74/100 feet (623.74') to an iron rod (set) at an angle point in said westerly line of Lot 74367;

Thence South twenty-three degrees thirty-three minutes one second East (S23°33'01"E) along said westerly line of Lot 74637 a distance of four hundred thirty-four and 16/100 feet (434.16') to a mag nail (set) at the intersection with the centerline of Valley Street (Right of Way Varies), as it now exists said point of intersection also being this Southeasterly corner of said Lot 74635;

Thence South fifty-three degrees zero minutes fifty seconds West (S53°00'50"W) along said centerline of Valley Street (Right of Way Varies) a distance of sixty and 38/100 feet (60.38') to a mag nail (set) at the intersection with the easterly line of Lot 74653;

Thence North sixteen degrees four minutes fifty-five seconds West (N16°04'55"W) along said easterly line of Lot 74653 a distance of two hundred twelve and 00/100 feet (212.00') to an iron pin with a WOOLPERT cap (found) at the intersection with the northerly line of said Lot 74653;



Thence South fifty-three degrees zero minutes fifty seconds West ($S53^{\circ}00'50''W$) along said northerly line of Lot 74653 and also along the northerly line of Lots 74652, 74651, 74650, 74649, 74648, 74647 and 74646 a distance of seven hundred thirty-three and 20/100 feet (733.20') to an iron rod (set) at the intersection with the westerly line of said Lot 74646;

Thence South five degrees fifteen minutes five seconds West ($S05^{\circ}15'05''W$) along said westerly line of said Lot 74646 a distance of ninety-seven and 50/100 feet (97.50') to an iron rod (set) at the intersection with the northerly line of Lot 74645;

Thence North eighty-five degrees eight minutes fifty-five seconds West ($N85^{\circ}08'55''W$) along said northerly line of Lot 74645 and also along the northerly line of Lot 74644 a distance of one hundred sixty and 20/100 feet (160.20') to an iron rod (set) at the intersection with the westerly line of said Lot 74644;

Thence South two degrees fifty-two minutes fifty-five seconds East ($S02^{\circ}52'55''E$) along said westerly line of said Lot 74644 a distance of twenty and 23/100 feet (20.23') to an iron rod (set) at the intersection of the northerly line of Lot 74643;

Thence South fifty-three degrees zero minutes fifty seconds West ($S53^{\circ}00'50''W$) along said northerly line of Lot 74643 and also along the northerly line of Lot 74639 a distance of two hundred sixty-seven and 66/100 feet (267.66') to an iron rod (set) at the intersection with the easterly right-of-way line of Semler Street (50 Foot Right of Way);

Thence North five degrees sixteen minutes five seconds East ($N05^{\circ}16'05''E$) along said easterly right-of-way line of Semler Street (50 Foot Right of Way) a distance of four hundred sixty-three and 39/100 feet (463.39') to an iron rod (set) at the intersection with the northerly plat line of Semler Subdivision No. 2 as recorded in Plat Book "H"; Page 38;

Thence North eighty-four degrees forty-one minutes fifty-five seconds West ($N84^{\circ}41'55''W$) along said northerly plat line of Semler Subdivision No. 2 a distance of two hundred thirteen and 59/100 feet (213.59') to an iron pin with a WOOLPERT cap (found) at the intersection with the easterly line of Lot 74638;

Thence North five degrees eighteen minutes five seconds East ($N05^{\circ}18'05''E$) along said easterly line of Lot 74638 a distance of thirty-five and 00/100 feet (35.00') to an iron pin with a WOOLPERT cap (found) at the intersection of the northerly line of said Lot 74638;

Thence North eighty-four degrees forty-one minutes fifty-five seconds West ($N84^{\circ}41'55''W$) along said northerly line with said Lot 74638 a distance of one hundred seventy-two and 01/100 feet (172.01') to a iron rod (found) at the intersection with said centerline of Valleycrest Drive (49.50 Foot Right of Way);

Thence South five degrees seventeen minutes fifty-seven seconds West ($S05^{\circ}17'57''W$) along said centerline of Valleycrest Drive a distance of three hundred twenty-eight and 70/100 feet (328.70') to a iron rod (found) at the intersection with the northerly line of Lot 74625;

Thence North eighty-four degrees fifty-six minutes forty-nine seconds West ($N84^{\circ}56'49''W$) along said northerly line of Lot 74625 a distance of four hundred ninety-two and 36/100 feet (492.36') to an iron rod (set) at the intersection of the westerly line of said Lot 74625;



Thence South five degrees eighteen minutes eleven seconds West (S05°18'11"W) along said westerly line of Lot 74625 and also along the westerly line of Lots 74626 and 74627 a distance of five hundred seventeen and 42/100 feet (517.42') to an iron rod with a WOOLPERT cap (found) at the intersection with the northerly line of the Baltimore & Ohio Railroad as recorded in Deed Book 1077, Page 539;

Thence North sixty-eight degrees thirty-one minutes forty-six seconds West (N68°31'46"W) along said northerly line of the Baltimore & Ohio Railroad a distance of one thousand six hundred forty-nine and 86/100 feet (1649.86') to a mag nail (set) at the intersection with said centerline of Brandt Street (66 Foot Right of Way);

Thence North twenty-seven degrees fifty-five minutes eight seconds East (N27°55'08"E) along said centerline of Brandt Street (66 Foot Right of Way) a distance of eight hundred four and 00/100 feet (804.00') to a mag nail (set) at the intersection with the southerly line of Lot 74602, said southerly line also being the northerly line of a 26.322 acre parcel of land as recorded in Deed Book 481, Page 300;

Thence South eighty-five degrees four minutes fifty-two seconds East (S85°04'52"E) along said southerly line of Lot 74602 a distance of one hundred seventy-six and 60/100 feet (176.60') to an iron rod with a WOOLPERT cap (found) at the intersection of the easterly line of said Lot 74602;

Thence North twenty-seven degrees fifty-five minutes eight seconds East (N27°55'08"E) along said easterly line of Lot 74602 a distance of one hundred sixty-eight and 80/100 feet (168.80') to an iron rod with a WOOLPERT cap (found) at the intersection with the northerly line of said Lot 74602;

Thence North eighty-five degrees four minutes fifty-two seconds West (N85°04'52"W) along said northerly line of Lot 74602 a distance of twenty-one and 60/100 feet (21.60') to an iron rod with a WOOLPERT cap (found) at the intersection with the easterly line of Lot 74601;

Thence North twenty-seven degrees fifty-five minutes eight seconds East (N27°55'08"E) along said easterly line of Lot 74601 a distance of ninety-seven and 96/100 feet (97.96') to an iron rod (set) at the intersection with the southerly line of said Lot 74600;

Thence North eighty-five degrees four minutes fifty-two seconds West (N85°04'52"W) along said southerly line of Lot 74600 a distance of one hundred fifty-five and 00/100 feet (155.00') to a mag nail (set) at the intersection with said centerline of Brandt Street (66 Foot Right of way);

Thence North twenty-seven degrees fifty-five minutes eight seconds East (N27°55'08"E) along said centerline of Brandt Street (66 Foot Right of Way) a distance of five hundred fifty-six and 22/100 feet (556.22') to the point of beginning.

Said parcel of land containing one hundred two and 98/100 (102.98) acres, more or less. Subject however to all covenants, conditions, restrictions, reservations and easements contained in any instrument of record pertaining to the above-described tract of land. This legal description was prepared by Trevor A. McMann, a Professional Surveyor No. 8522, on June 7, 2019. The basis of bearing for said description is the Ohio State Plane Coordinate System, South Zone (NAD83), US Survey Foot. This description does not exceed the mathematical error in closure requirements set forth in Paragraph (C) of O.A.C. Rule 4733-37-04 measurement specifications of the Ohio Administrative Code (O.A.C).

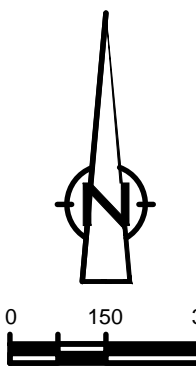


PLAT OF SURVEY
SECTION 30 & 36, TOWN 2, RANGE 7 MRS.
BETWEEN THE MIAMI'S, CITY OF DAYTON
MONTGOMERY COUNTY, OHIO



GHD
26850 Haggerty Road
Farmington Hills, Michigan 48331
T 248 893 3400 F 248 893 3454 W www.ghd.com

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Client
**VALLEYCREST
DAYTON, OHIO**

Project
**PLAT OF
SURVEY**

No.	Issue	Drawn	Approved	Date
-----	-------	-------	----------	------

Drawn	GAW	Designer		
-------	-----	----------	--	--

Drafting		Design		
Check		Check		

Project Manager	NS	Date	Jun 7, 2019	
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This document shall not be used for construction unless signed and sealed for construction.	Scale	AS SHOWN		
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Original Size	ANSI D	Bar is one inch on original size drawing	0	1"
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Project No. 016816-35

Title
OVERALL BOUNDARY

Sheet No.

FIGURE 1

ATTACHMENT B

Original Environmental Covenant

~~Settling Work Parties shall attach a copy of the Original Environmental Covenant~~

Dinsmore & Shohl LLP
ATTORNEYS

Vincent B. Stamp
513-977-8264
vince.stamp@dinslaw.com

November 5, 2007

FIRST-CLASS MAIL

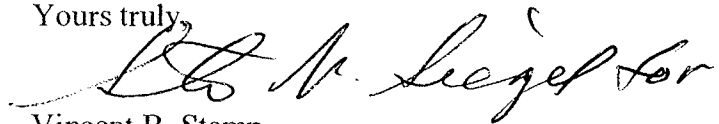
Mark Navarre, Esq.
Ohio Environmental Protection Agency
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215-1099

Re: North Sanitary Landfill Superfund Site

Dear Mark:

Pursuant to the requirements contained therein, I hereby certify, as counsel to the Valleycrest Landfill Site Group ("VLSG"), that the enclosed Environmental Covenant has been recorded on the parcels of land in Montgomery County, Ohio that make up the North Sanitary Landfill Superfund Site, also known as the Valleycrest Landfill. I have also enclosed as an attachment a date-stamped copy of the recorded Environmental Covenant.

Yours truly,



Vincent B. Stamp
Counsel to the Valleycrest Landfill Site Group

Enclosure

cc: VLSG
U.S. EPA (Cynthia Kawakami, Esq.)
The Keystone Gravel Company (Joe McGregor)
City of Dayton, Ohio (Donna Winchester)
City of Riverside, Ohio (Mary Ann Brane)
Montgomery County Commissioners (Carol A. Prewitt, Clerk)
Old North Dayton Neighborhood Association (Teresa Horvath)
Valleycrest Neighbors and Concerned Citizens (Emilee George)

10934-1
SHS

To be recorded with Deed
Records – ORC § 317.08

ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by The Keystone Gravel Company, an Ohio corporation, with an address at 333 Oakwood Avenue #2B, Dayton, Ohio 45409 (“Owner”), the Valleycrest Landfill Site Group, represented by its agent, de maximis, inc., with an address at 450 Montbrook Lane, Knoxville, Tennessee 37919, (“Holder”), and the Ohio Environmental Protection Agency (“Ohio EPA”) pursuant to Ohio Revised Code (“ORC”) §§5301.80 to 5301.92, for the purpose of subjecting the Property (as defined herein) to the activity and use limitations and to the rights of access set forth herein.

WHEREAS, Owner is the owner of certain real property consisting of parcels of land situated in Dayton, Montgomery County, Ohio and legally described in Exhibit “A” hereto (collectively referred to herein as the “Property”); and

WHEREAS, the Property comprises most of the North Sanitary Landfill Superfund Site (“Site”), encompassing approximately 102 acres, located at 200 Valleycrest Drive in the City of Dayton, Montgomery County, Ohio, and depicted more particularly on the map attached as Appendix A to the January 31, 1995 Final Findings & Orders (“1995 FF&Os”) issued by the Director of the Ohio EPA, where the treatment, storage, and/or disposal of hazardous substances, and/or the discharge into waters of the state of industrial waste and/or other waste may have occurred; and

WHEREAS, pursuant to the 1995 FF&Os certain entities that comprise Holder agreed to perform certain interim actions and a remedial investigation and feasibility study of the Site, including the Property, to determine the nature and extent of any contamination at the Site, assess any risks to human health and the environment posed by the contamination, and develop and analyze remedial actions to address identified risks; and

WHEREAS, the administrative record for the Site is located at Ohio EPA’s Southwest District Office, 401 East 5th Street, Dayton, Ohio 45402; and

WHEREAS, the entities that comprise Holder are alleged to be liable as potentially responsible parties (“PRPs”) under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (“CERCLA”), as amended, 42 U.S.C. § 9601 et seq. with respect to the Property; and

WHEREAS, certain entities that comprise Holder and others executed with the United States Environmental Protection Agency (“U.S. EPA”) an Administrative Order on Consent (“AOC”), effective September 13, 1998, relating to the Site pursuant to which certain entities that comprise Holder performed a drum removal and continue to investigate and control landfill gas as required by the AOC; and

10/24/07 14:35:01
SP-1-07-089930 0025
Montgomery County
Willis, E. Blackshear Recorder
265302_12.DOC

WHEREAS, in order to implement the remedy that may be selected for the Site, including operation and maintenance of the remedy, it is necessary to impose certain activity and use limitations on the Property as stated herein for the purpose of protecting human health and the environment; and

WHEREAS, the City of Dayton has approved a Valleycrest Reuse Framework adopted by the Dayton City Commission on October 5, 2005 (the "Reuse Framework") for the Property, a copy of which Reuse Framework is attached hereto as Exhibit "B".

NOW THEREFORE, Owner, Holder, and Ohio EPA agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant developed and executed pursuant to ORC §§5301.80 to 5301.92.
2. Property. This Environmental Covenant concerns approximately 102+ acres of real property in Dayton, Montgomery County, Ohio and more particularly described in Exhibit "A" attached hereto and hereby incorporated by reference herein (the "Property").
3. Owner. The Keystone Gravel Company, an Ohio corporation, whose address is listed above ("Owner"), is the owner of the Property.
4. Holder. The Valleycrest Landfill Site Group, whose address is listed above ("Holder") is the Holder of this Environmental Covenant.
5. Activity and Use Limitations. In order to facilitate the implementation of future monitoring and remedial work by U.S. EPA, Ohio EPA and/or Holder, as well as the remedy that may be selected for the Site, and to protect human health and the environment, Owner hereby imposes and agrees to comply with the following activity and use limitations:
 - A. No water wells, for potable use, shall be installed on any part of the Property. In no event shall any groundwater located at or underlying any part of the Property be used for any purpose, potable or otherwise, except for groundwater remediation, monitoring or investigation.
 - B. The Property shall not be used for Residential Activities. The term "Residential Activities" shall include the following:
 - i. Single and multi-family dwelling units (both owner-occupied and rental);
 - ii. Day care centers;
 - iii. Hotels, motels and rooming houses;
 - iv. Correctional facilities and detention centers;
 - v. Transient or other residential facilities;
 - vi. Elementary and secondary schools; and/or
 - vii. Hospitals and other extended medical care facilities.

C. The Property shall not be used

- i. for any purposes inconsistent with the commercial/retail, light industrial, recreational and other uses specified in the Reuse Framework; or
- ii. in any manner that would interfere with the investigation, monitoring or remediation described in the 1995 FF&Os or the AOC, or in any manner that would be inconsistent with the remedy that may be selected.

In the event that any action by or on behalf of a person who owns an interest in or holds an encumbrance on the Property constitutes a violation of these activity and use limitations, Holder, Owner or Transferee, as defined herein, shall notify Ohio EPA within thirty (30) days of becoming aware of the event or action, and Owner, Transferee or Holder, to the extent that Holder has the reasonable ability to do so, shall remedy the violation of the activity and use limitations within sixty (60) days of becoming aware of the event or action, or such other time frame as may be agreed to by Holder, the Owner or Transferee and Ohio EPA.

6. Running with the Land. This Environmental Covenant shall be binding upon the Owner and all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC §5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

7. Compliance Enforcement. Compliance with this Environment Covenant may be enforced pursuant to ORC §5301.91 or other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA and the Administrator of U.S. EPA from exercising any authority under applicable law.

8. Rights of Access. Owner hereby grants to Ohio EPA, its agents, contractors and employees, and to the Holder, their agents, contractors, and employees, the right of access to the Property for implementation or enforcement of this Environmental Covenant.

9. Compliance Reporting. Holder shall submit to Ohio EPA on an annual basis in its monthly Progress Report for June of each year written documentation verifying that the activity and use limitations remain in place and are in compliance with this Environmental Covenant.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, DATED _____, 200_, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE MONTGOMERY COUNTY RECORDER ON _____, 200_, IN [DOCUMENT _____, or BOOK, _____ PAGE _____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS: GROUNDWATER RESTRICTION; RESIDENTIAL USE RESTRICTION; AND RESTRICTION ON USE INCONSISTENT WITH INVESTIGATION, MONITORING, REMEDIATION OR REUSE.

Owner or any Transferee shall notify Holder and Ohio EPA within ten (10) days after each conveyance of an interest in any portion of the Property. Notice by the Owner or Transferee shall include the name, address, and telephone number of the Transferee of such Property interest, a copy of the deed or other documentation evidencing the conveyance, a legal description of the Property interest being transferred, a survey map of the Property interest being transferred, and the closing date of the transfer of ownership of the Property interest.

11. Representations and Warranties. Owner hereby represents and warrants to the other signatories hereto:

- A. that the Owner is the sole owner of the Property;
- B. that the Owner holds fee simple title to the Property;
- C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;
- D. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property and notified such persons of the Owner's intention to enter into this Environmental Covenant; and
- E. that this Environmental Covenant does not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected.

12. Amendment or Termination. This Environmental Covenant may be amended or terminated only by written consent of all of the following: the Owner or a Transferee, the Holder, and the Ohio EPA, pursuant to ORC §5301.90 and other applicable law. Amendment means any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. It is anticipated that the amendment of this Environmental Covenant may be necessary or appropriate after selection of the remedy for the Site. Termination means the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA, the Holder and the Owner or Transferee of the Property or portion thereof, as applicable. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner or Transferee shall file such instrument for recording with the Montgomery County Recorder's Office and shall provide a true copy of the recorded Instrument to Ohio EPA and U.S. EPA.

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

15. Recordation. Within thirty (30) days after the date of the final required signature upon this Environmental Covenant, Owner or Holder shall file this Environmental Covenant for recording in the Office of the Montgomery County Recorder in the same manner as a deed to the Property, pursuant to ORC §5301.88. Within ten (10) days of the recording of this Environmental Covenant, Owner or Holder shall certify to Ohio EPA that the Environmental Covenant has been filed for recording, and shall include with the certification a filed and date-stamped copy of the recorded Environmental Covenant.

16. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the Montgomery County Recorder's Office.

17. Distribution of Environmental Covenant. The Owner shall distribute copies of the recorded Environmental Covenant to: U.S. EPA, Ohio EPA, the Holder, any lessee, each person holding a recorded interest in the Property, the City of Dayton, Ohio, the City of Riverside, Ohio, the Montgomery County Commissioners, the Old North Dayton Neighborhood Association, and the Valleycrest Neighbors and Concerned Citizens organization.

18. Notice. Unless otherwise notified in writing by or on behalf of any party hereto, any document or communication required by this Environmental Covenant shall be submitted to:

Ohio EPA, Southwest District Office
c/o Valleycrest Landfill Site Coordinator
Division of Emergency and Remedial Response
401 East 5th Street
Dayton, Ohio 45402

Valleycrest Landfill Site Group
c/o VLSG Alternate Project Coordinator
de maximis, inc.

450 Montbrook Lane
Knoxville, Tennessee 37919

The Keystone Gravel Company
Keystone Sand & Gravel
333 Oakwood Avenue #2B
Dayton, OH 45409

The undersigned representatives of Owner and Holder represent and certify that they are authorized to execute this Environmental Covenant.

This Environmental Covenant has been executed as of the 18 day of JULY, 2007.

THE KEYSTONE GRAVEL COMPANY, an
Ohio corporation

By: J. R. McGregor

Its: President

STATE OF OHIO)

)

SS:

COUNTY OF MONTGOMERY)

This instrument was acknowledged before me this 18 day of July, 2007
by J. R. McGregor, President of The Keystone Gravel Company, an
Ohio corporation, on behalf of the corporation.



Notary Public

CHARLES D. SHOOK, Attorney at Law
Notary Public, State of Ohio
My Commission has no expiration date
Section 147.03 R. C.

PREPARED BY: STEVE SCHRIBER, ATTORNEY

VALLEYCREST LANDFILL SITE GROUP

By: *de maximis, inc.*, a Tennessee corporation,
its Agent

By: Michael A Miller

Its: Chief Operating Officer

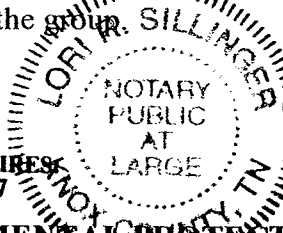
STATE OF Tennessee)

)

COUNTY OF KNOW)

SS:

This instrument was acknowledged before me this 17th day of September, 2007
by Michael A. Miller, COO of *de maximis, inc.*, a Tennessee
corporation, on behalf of the corporation, in its capacity as agent of the Valleycrest Landfill Site
Group, on behalf of the group.



MY COMMISSION EXPIRES
December 22, 2007

[Signature]
Notary Public

OHIO ENVIRONMENTAL PROTECTION AGENCY

[Signature]
Chris Korleski, Director

10/10/07
Date

State of Ohio)

) ss.

County of Franklin)

Before me, a notary public, in and for said county and state, personally appeared Chris
Korleski, the Director of Ohio Environmental Protection Agency, who acknowledged to me that
he did execute the foregoing instrument on behalf of Ohio Environmental Protection Agency.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal
this 10th day of OCTOBER, 2007.



Charma Diane Casteel
Notary Public

CHARMA DIANE CASTEEL
NOTARY PUBLIC
STATE OF OHIO
MY COMMISSION EXPIRES
MAY 10, 2009

EXHIBIT "A"
Legal Descriptions

Situated in the State of Ohio, County of Montgomery, City of Dayton being more particularly described as follows:

Being City of Dayton lot numbers 74599, 74603, 74604, 74618,
74620, 74622, 74623, 74619, 74621, 74624, 74633, 74634, 74635,
74636, 74600 and 79327

EXHIBIT "B"
Valleycrest Reuse Framework

Valleycrest Reuse Framework

Prepared for: The City of Dayton, Office of Economic Development



Case RC-017-2005 approved by City of Dayton Plan Board on August 16, 2005
Informal Resolution No. 655-05 adopted by the Dayton City Commission on October 5, 2005



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Definitions

Federal EPA - Federal Environmental Protection Agency

Ohio EPA - Ohio Environmental Protection Agency

NEPB - Northeast Priority Board

ONDNA - Old North Dayton Neighborhood Association

RFT - Reuse Facilitation Team

VNCC - Valleycrest Neighbors and Concerned Citizens



Introduction

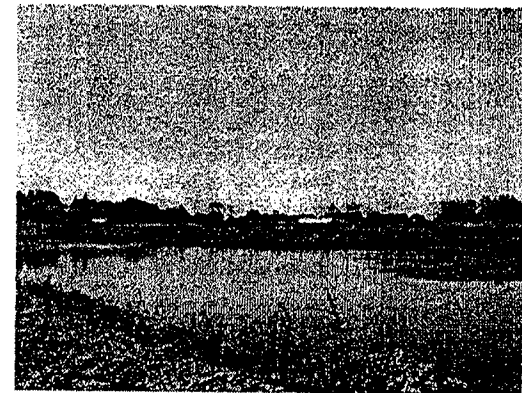
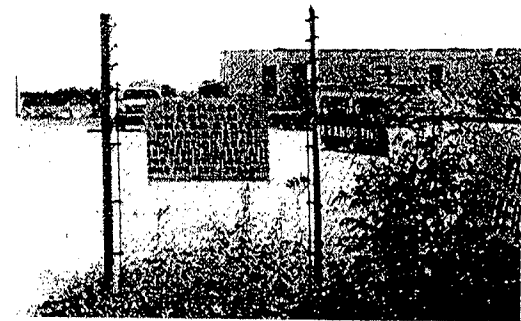
Background

The 100 acre Valleycrest Landfill is situated in the northeast section of Dayton between the Mad and Miami Rivers. It is surrounded by a mixed-use residential neighborhood of single family homes, apartments, and commercial uses. The City of Riverside lies to the north and the Old North Dayton Neighborhood to the west. Valleycrest lies between the City of Dayton's two well fields: the Miami Well Field to the northwest and the Mad River Well Field to the southeast. Between 1966 and 1975, after extensive quarrying, the site was used as an industrial and municipal solid waste landfill. The western 1/3 of Valleycrest, along Brandt Pike, received slag and foundry sands while the eastern 2/3 of the site was filled primarily with municipal and industrial wastes. During its time of operation thousands of drums, since removed, containing industrial waste products were hauled to the site. The landfill was placed on the National Priorities List of Superfund sites on May 31, 1994.

Superfund sites such as this one cannot be planned in the same manner as "greenfield sites", or previously undeveloped lands. Because of its long history of excavation and filling, the Valleycrest Landfill site is physically limited in the way in which it can be redeveloped. The western 1/3 of the site will be capable of supporting traditional building loads due to the foundry sands and slag that were deposited here. The eastern 2/3 of the site, however, will be restricted to lightweight structures (such as restrooms, concession stands, etc.), commercial activity and recreational uses. Portions of the site may require capping coverage. Continued environmental monitoring will be necessary due to the methane gas production, the close proximity to residential neighborhoods, and the location between the two drinking water well fields. Recognizing these limitations is of critical importance in order to develop a site-sensitive redevelopment solution.

Despite its extensive constraints, the size and location of the Valleycrest site offers a rare and exciting opportunity to do something on a large scale in northeast Dayton. Located adjacent to Route 4, it provides an exceptional opportunity to connect with Downtown Dayton, the Mad River Recreation Corridor, and Wright-Patterson Air Force Base. It is a few miles from the proposed Tech Town development at Webster Station and about 11 miles from Dayton International Airport. The following are key components of the local and regional context (also see context map page 4):

- Old North Dayton Neighborhood
- Downtown Dayton
- The Mad River Recreation Corridor
- Springfield Street Entertainment Office Center
- Wright-Patterson Museum and Visitor Center
- Wright-Patterson Air Force Base
- Wright State University
- The Harshman Commercial Corridor
- Tech Town
- Dayton International Airport
- The City of Riverside



Introduction

Opportunities

For the redevelopment of Valleycrest to be successful, a customized strategy must be developed. It is critical that this redevelopment strategy include concepts with responsible economic positioning, responsive site design, and substantial community support. Due to the fact that former landfill sites require additional effort and funding to redevelop, strategic economic positioning and niche marketing techniques should be implemented which would focus on non-traditional, emerging economic sectors. These emerging sectors, such as green power production, will attract developers, public interest, and assist in creating a positive, renewed image of Valleycrest.

The primary goal for redevelopment of the site is to create a neighborhood-centered development, with positive implications for job creation and environmental reconditioning. The site's limited load-bearing capacity and need for some type of ongoing environmental remedial measures may inhibit conventional, market-driven development.

Industrial Use:

The market for traditional space appears to be saturated, as a nearby industrial park continues to sit vacant more than a year after final platting and installation of public infrastructure. However, the availability of substantial acreage, with access to and visibility from Route 4 may support specialized light industry in unique combinations.

Commercial Use:

Given the site's constraints and the surrounding empty businesses along the commercial areas of Valley Street, quality commercial uses will likely not drive redevelopment. Although the interior of the site could easily support land-intensive commercial uses that every city needs (mini-warehouses, lumberyards, and other quasi-industrial uses), such uses would be difficult to mesh with the surrounding residential neighborhoods. As the site redevelops, potential for small-scale commercial/retail development will improve particularly on areas fronting Valley Street. The non-commercial activities on site may ultimately generate supporting commercial spin-off in surrounding areas.

Residential Use:

Given that the site will continue to generate methane, residential redevelopment is not a viable option.

Recreational Use:

Publicly accessible, active hardscape and softscape recreational use, such as baseball and soccer fields, BMX biking and walking trails, are appropriate uses given the potential requirement to cap portions of the site. Additionally, the adjacent neighborhoods would directly benefit from such uses. The Mad River Recreation Corridor to the south could connect on site recreation to Downtown and the Wright-Patterson Air Force Base.



Introduction

Concepts For Redevelopment

Based on its regional and local context, as well as its redevelopment constraints, the Valleycrest site would benefit from uses that emphasize green, environmentally-friendly activities and building practices that incorporate employment, recreational, and semi-educational attributes. The following uses are mutually beneficial when grouped together in a single location and can work to transform the Valleycrest site into a successful asset to its community. Potential concepts for redevelopment on the Valleycrest site are:

- **Active and Passive Recreation**

Hardscape and softscape active recreational uses such as soccer and baseball fields, BMX biking and walking trails are acceptable, and would provide an additional barrier between the areas of land that may be capped and subsurface materials. Recreation amenities also provide tangible neighborhood benefits and provide an open space component for the development. The Valleycrest site is also adjacent to the Mad River Recreation Corridor to the south, which could connect onsite recreational uses to Downtown Dayton as well as Wright-Patterson Air Force Base.

- **Green Power Production**

Green Power Production facilities could provide a reliable, clean power source for the industrial uses on site as well as the surrounding neighborhoods.

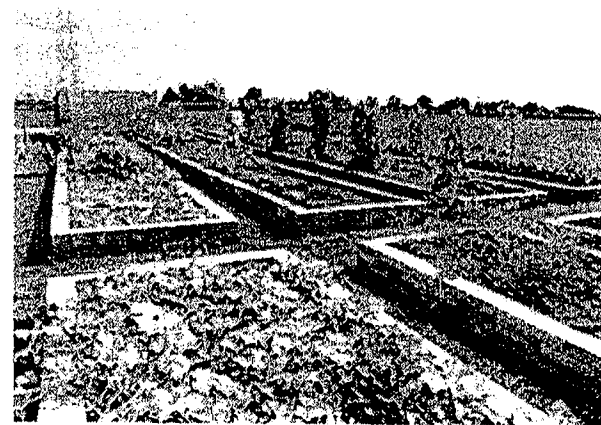
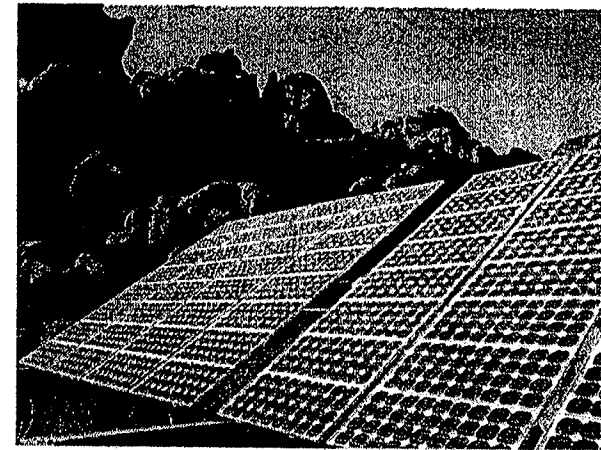
- **Urban Agriculture and Horticulture**

Urban Agriculture and Horticulture on the Valleycrest site would produce cleaner air, fresh produce to sell in the local economy as well as other positive effects. Lightweight greenhouse structures would be ideal on this site due to its load-bearing limitations and would provide an additional barrier between the surface and subsurface.

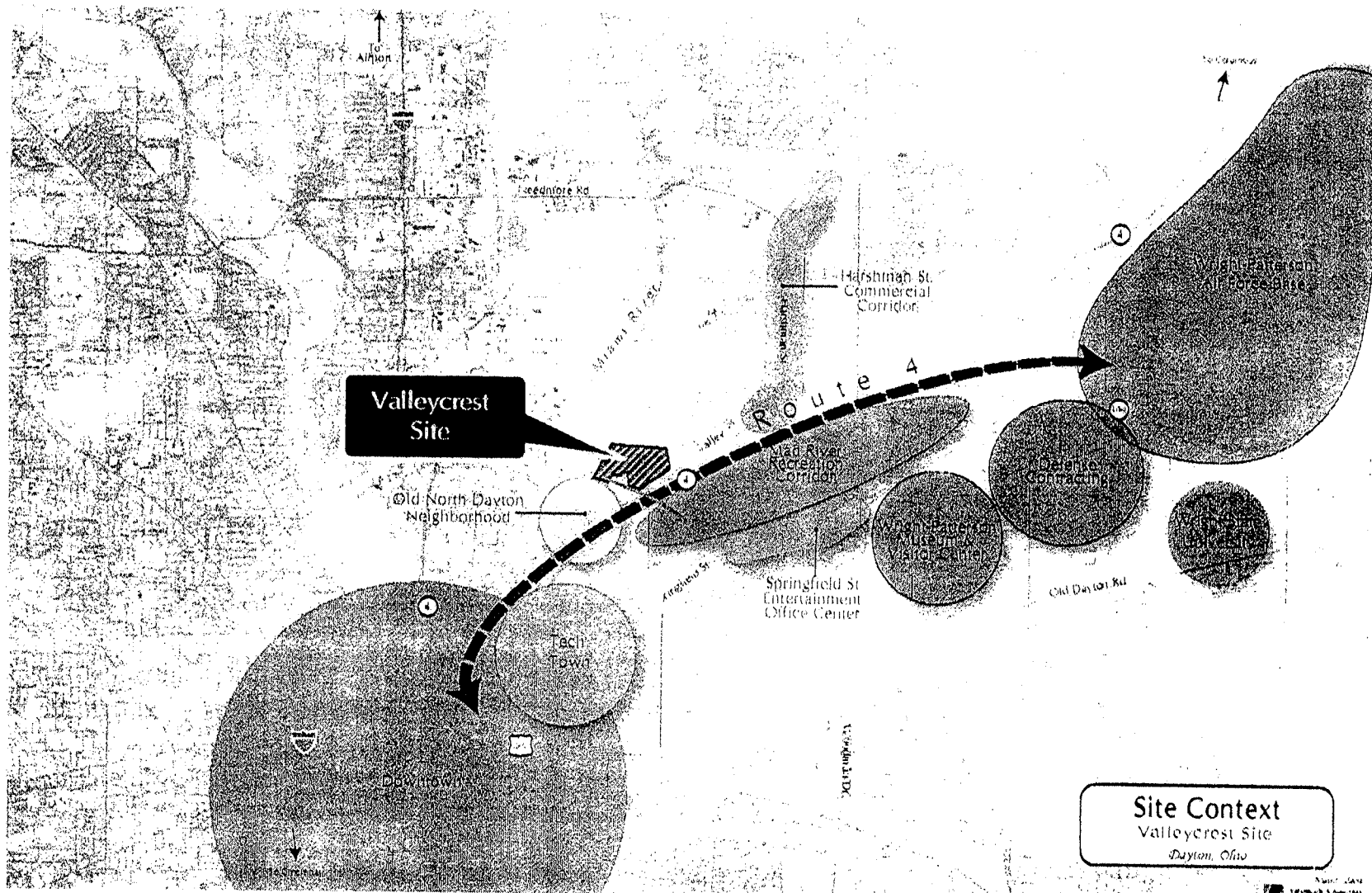
- **Eco-Industrial Development**

Eco-Industrial development on site would create jobs while manufacturing products in a clean, quiet and more environmentally friendly process. Eco-industrial structures are typically built with energy efficient building materials and implement energy-saving methods.

The purpose of the Valleycrest Reuse Framework is to guide the decision making process for the redevelopment of this vital piece of the Dayton community and to assist in further defining the future of Valleycrest.



Context



Redevelopment Goals

Goals

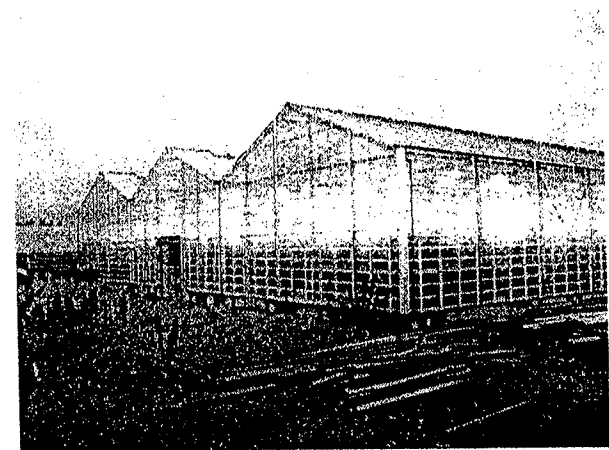
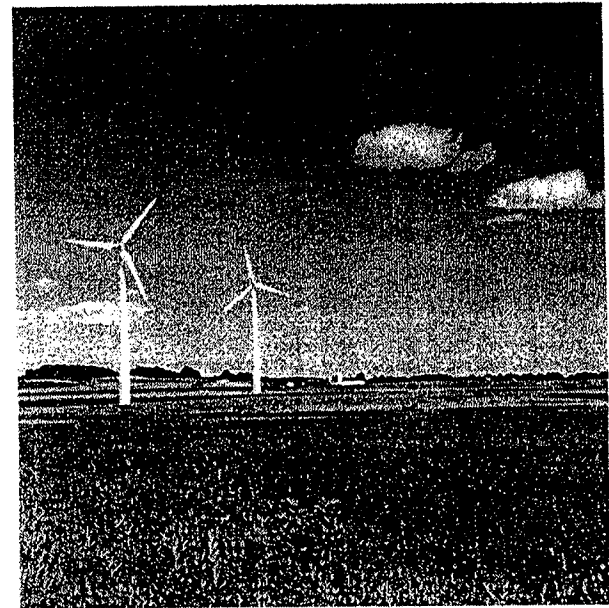
- To create a neighborhood-centered development with positive implications for job creation and environmental conditioning
- Ensure the safety of human health and the environment
- Provide a tangible benefit to the surrounding neighborhoods
- Employ "green" uses to combat the site's negative image from its past use
- Provide new employment opportunities
- Generate new tax base
- Take advantage of opportunities for the cogeneration of heat and power
- Respond to existing site conditions and locational opportunities
- Address the need for lightweight construction (such as restrooms, concession stands, etc.) and capping requirements
- Accommodate the need for ongoing remediation and environmental monitoring
- To review existing data, reports and plans relating to the Valleycrest site and surrounding area
- To conduct site inventory and analysis of the Valleycrest site
- To gather input from the City of Dayton, NEPB, VNCC, ONDNA, Valleycrest Landfill Site Group, and conduct investigative interviews with potential reusers in order to gain a sense of community goals and attitudes
- To make recommendations for Valleycrest Landfill site improvements, making it a valuable asset to the Dayton community



Redevelopment Objectives

Objectives

- Reclaim the Valleycrest Landfill site for reuse potential
- Develop publicly accessible active and passive/open space recreation
- Eco-Industrial Development
- Green Power Distribution
- Urban Agriculture and Horticulture
- Research Institutions
- Establish compatibility with Downtown Dayton, Old North Dayton neighborhood, the Mad River Recreation Corridor, Wright-Patterson Air Force Base and Museum, and Wright State University
- Develop a framework for redevelopment of the Valleycrest Landfill site



Planning and Design Process

Throughout the Planning and Design Process, a definite focus was placed on collaboration and public participation. A series of public forums were held in which citizens had the opportunity to voice their opinions and actively shape the future of the Valleycrest Landfill site.

Work Phase I Preliminary Investigations

Base mapping information and other relevant data was provided by the City of Dayton in order to begin the project process. This information was then analyzed and discussed with the RFT, in order to define the physical constraints and limits of development for the site. Extensive site inventory and analysis was then conducted in order to fully comprehend the critical site issues and conditions, including a firsthand visit to the Valleycrest Landfill site. A strong partnership was developed between the City of Dayton, the Federal and Ohio EPAs, the public and Envision-Works Inc. in order to produce a preliminary outline of the written Planning and Design Program. This document will serve as a development framework for the reuse plan, including design goals, objectives, options and standards for the site. Feedback was then solicited for this Planning and Design program from the City of Dayton RFT, and revisions were made.

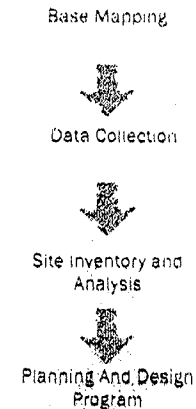
Work Phase II Final Reuse Framework Formulation

Based on the feedback received on the approved Planning and Design Program, two preliminary reuse framework scenarios were developed for the Valleycrest Landfill site. These scenarios explored the potential land uses both within and immediately adjacent to the landfill. The alternative landfill reuse frameworks depicted schematic site and facility development patterns including streets and parking, building configurations, open spaces, environmental design enhancements, and other public and private land use amenities that would describe the potential physical development on site. These alternative scenarios were prepared to graphically depict the recommended land uses (see Appendix, pages 11&12).

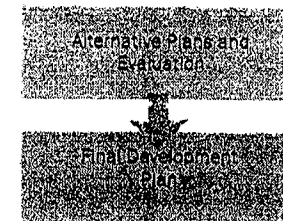
VALLEYCREST LANDFILL-REUSE FRAMEWORK

Envision-Works, Inc. November 30, 2004

Work Phase I - Preliminary Investigation



Work Phase II - Reuse Plan Formulation

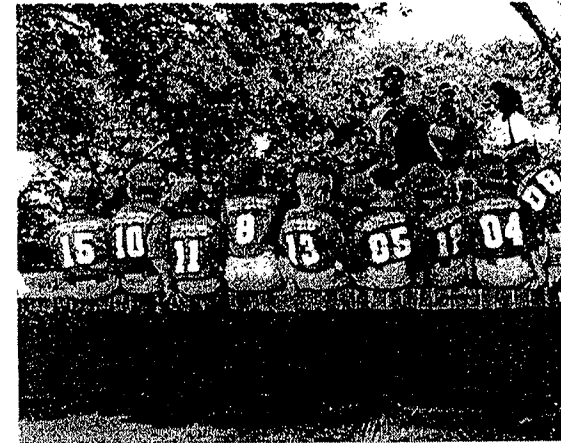


Site Recommendations

The Final Reuse Framework included recommendations for the future improvement of the Valleycrest Landfill site. The following recommendations and descriptions correspond to the map on page 10.

All Areas

- All existing vegetation on site is strongly encouraged to be protected and preserved primarily on the perimeter and where appropriate throughout the development.
- All new development on the site should encourage and promote the use of building and construction techniques, designs and materials that are environmentally responsible, sustainable and will result in a healthy place in which to work and play.
- All uses and activities on site must be publicly accessible and meet all City of Dayton regulations for such items as, but not limited to, noise, hours of operation and public assembly.
- Zoning should reflect the intent and purpose of the recommended development for the subject area.
- Explore using existing geographical features for future site amenities, energy efficiency and environmental sensitivity.
- Public R.O.W. access must be provided through the site for existing residents to the north and other on site amenities.
- Provide a minimum landscape buffer of 30' between all residential areas adjacent to the developable Valleycrest site.
- Explore methods of improving the visual appearance of the properties adjacent to the eastern property line of the site.



Site Recommendations

Area A

- Clean up and enhance the "natural" appearance of the site along Brandt Pike.
- Site redevelopment should be contained within the western 1/3 of the site. Redevelopment should encourage uses that promote building development possibilities to include, but not limited to, low intensity commercial and/or business offices, a public safety facility, a health club, an indoor/outdoor recreation facility, a research development facility, etc.
- Explore acquiring and using the railroad R.O.W. to the south for pedestrian and bicycle access to the site.

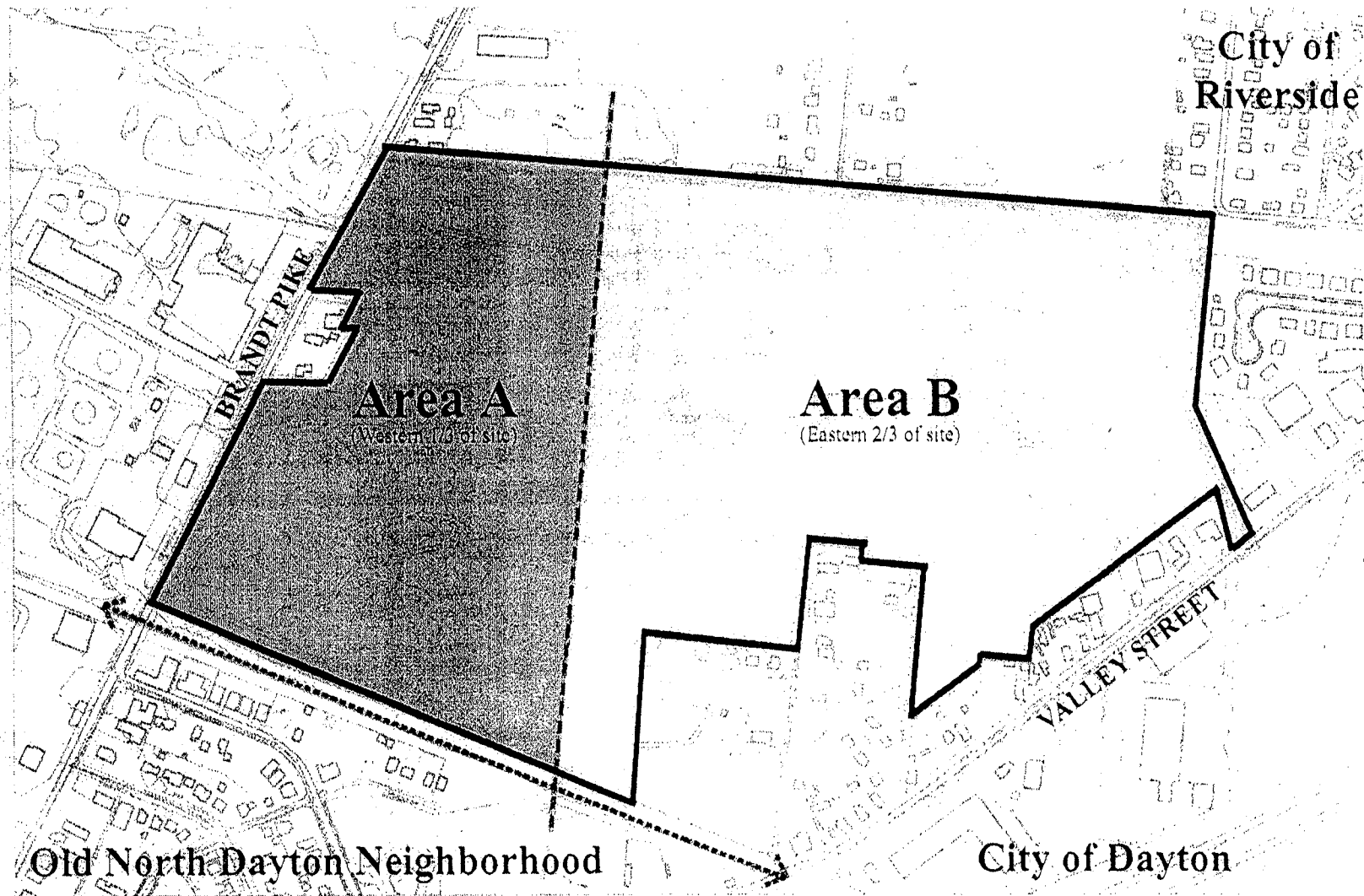


Area B

- Explore acquiring and using the railroad R.O.W. to the south for pedestrian and bicycle access to the site.
- Development on eastern 2/3 of the property should encourage uses which have an emphasis on publicly accessible outdoor and open space recreational activities such as soccer, tennis, and biking. Zoning should reflect the intent and purpose of the recommended development for the subject area.



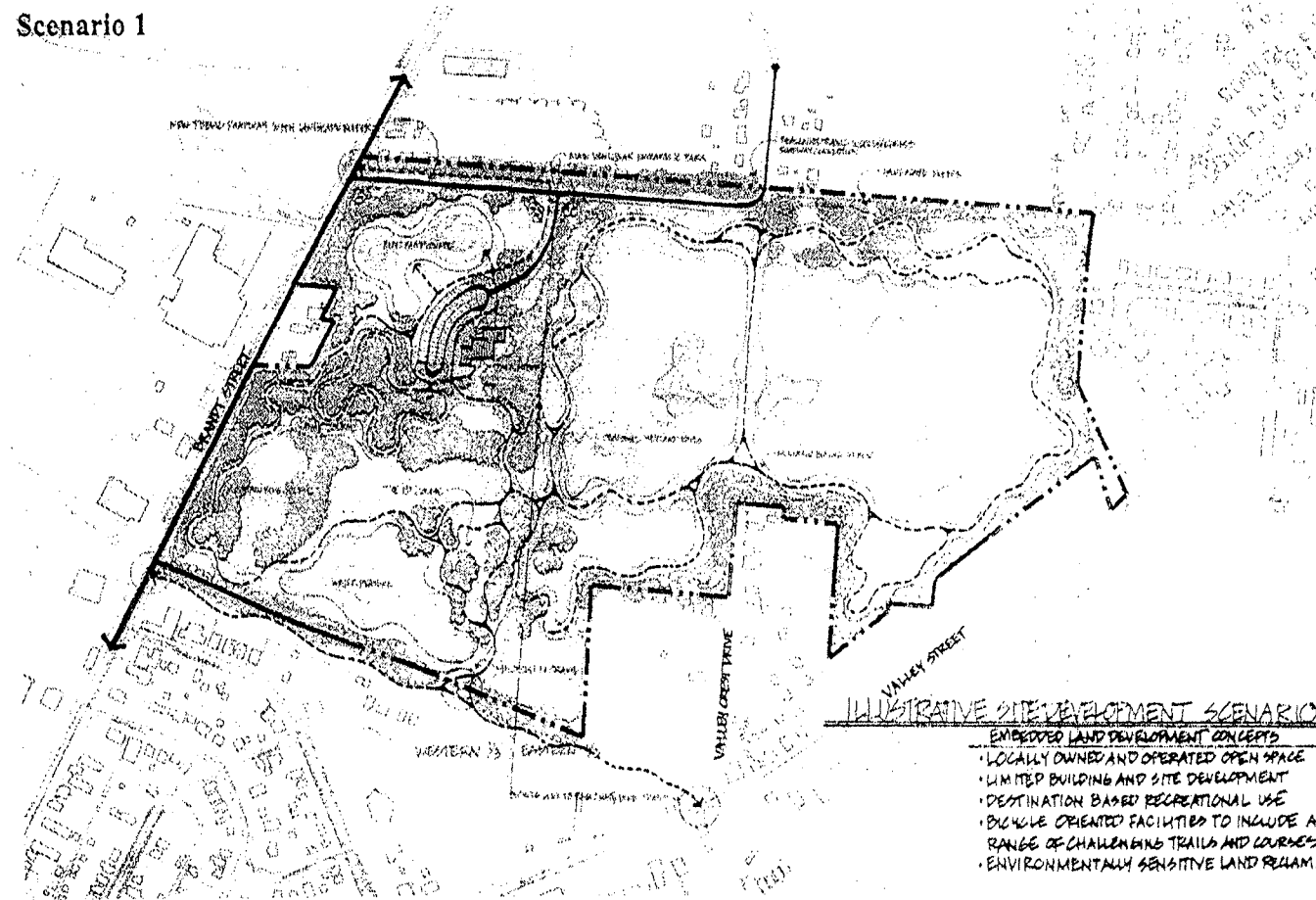
Final Reuse Framework Map



Appendix

Alternative Landfill Reuse Scenarios

Scenario 1



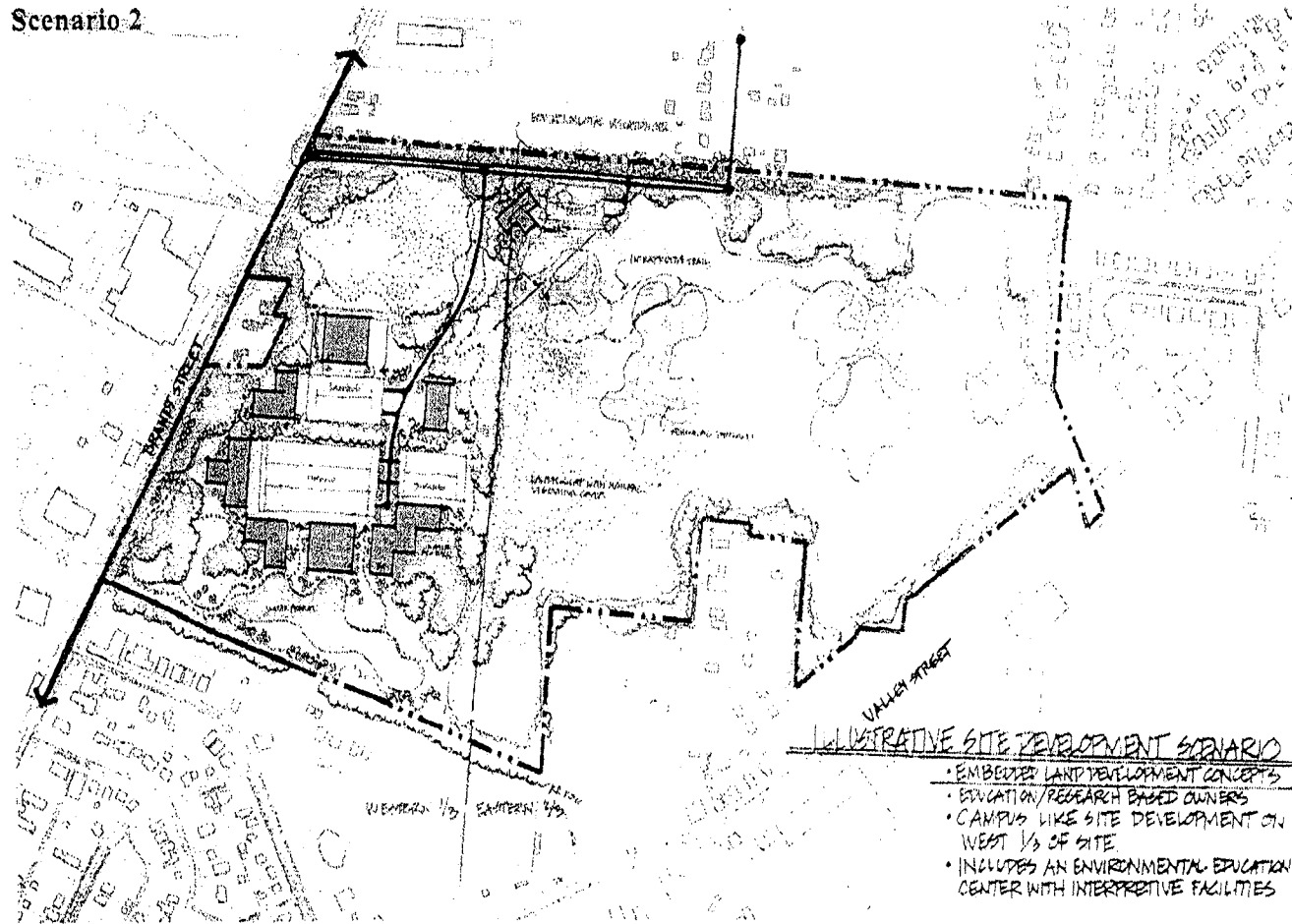
- Locally owned and operated open space
- Limited building and site development
- Destination-based recreational use
- Bicycle oriented facilities to include a range of challenging trails and courses
- Environmentally sensitive land reclamation
- Walking activity and park-like activity

ILLUSTRATIVE SITE DEVELOPMENT SCENARIO

- EMBEDDED LAND DEVELOPMENT CONCEPTS
- LOCALLY OWNED AND OPERATED OPEN SPACE
 - LIMITED BUILDING AND SITE DEVELOPMENT
 - DESTINATION BASED RECREATIONAL USE
 - BICYCLE ORIENTED FACILITIES TO INCLUDE A RANGE OF CHALLENGING TRAILS AND COURSES
 - ENVIRONMENTALLY SENSITIVE LAND RECLAM.

Appendix

Scenario 2



- Education/research based on owner preference
- Campus-like site development on western 1/3 of site
- Includes environmental education center with interpretive facilities



Appendix

Contributors

The City of Dayton

Reuse Facilitation Team (RFT)

Greg DeLong
Ernie DeWaters
Gwen Eberly
Gayle Galbraith
Mary Taylor
Joseph Weinel
Donna Winchester

Office of Economic Development
Department of Planning and Community Development
Department of Public Works Division of Civil Engineering
Department of Water

Northeast Priority Board
Old North Dayton Neighborhood Association
Valleycrest Neighbors and Concerned Citizens

Montgomery County
Montgomery County Combined Health District
Montgomery County Solid Waste District

The City of Riverside
Greenworks: Landfill Site Opportunities Analysis
United States EPA
Ohio EPA
Valleycrest Landfill Site Group

Envision-Works Inc.
Gary Sierschula
Eric Sauer
Katie Brenkert
Elise Donaldson

ATTACHMENT C

Notice upon Conveyance of Site or any Portion thereof

THE INTEREST CONVEYED HEREBY IS SUBJECT TO (1) A CONSENT DECREE DATED _____ OCTOBER 30, 20187 WHICH WAS ENTERED BY THE FEDERAL DISTRICT COURT FOR THE SOUTHERN DISTRICT OF OHIO ON THE 30TH DAY OF _____

_____ OCTOBER, 20187 AND DOCKETED AS UNITED STATES V. BRIDGESTONE AMERICAS TIRE OPERATIONS, LLC, ET AL., DOCKET NO. _____ 3:18-CV-00054 (S.D. OHIO) (*HEREINAFTER* "CONSENT DECREE"), AND (2) AN AMENDED ENVIRONMENTAL COVENANT, DATED _____, 20__, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE OFFICE OF THE MONTGOMERY COUNTY RECORDER ON _____, 20__, IN BOOK _____, PAGE _____. THE AMENDED ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS AND ACCESS RIGHTS:

1. Activity and Use Limitation on the Site.

a. Land Use Restrictions. The Property shall not be used for Residential Uses and Other Prohibited Uses. The term "Residential Uses and Other Prohibited Uses" means: (i) single and multi-family dwellings and transient residential units; (ii) occupancy on a 24-hour basis; (iii) uses to house, educate, or provide care for children, the elderly, the infirm, or other sensitive subpopulations; and (iv) agricultural uses. The Property shall also not be used in any manner that would interfere with or adversely affect the integrity or protectiveness of the Remedial Action which has been implemented or which will be implemented pursuant to the Consent Decree unless the written consent of the EPA to such use is first obtained. Further, no Waste Material shall be brought onto the Property, except in accordance with any federal, state or local permit or the Consent Decree.

b. No Interference with Cover. Except as provided in a plan approved in writing by EPA, the following activities are prohibited in any cover installed pursuant to the requirements of the Consent Decree: 1) any excavation or other intrusive activity that could affect the integrity of the cover; and 2) any disturbance of the materials underneath the cover.

c. Groundwater Restrictions. Except as required as part of an EPA approved activity, or upon written certification by EPA that all applicable performance standards have been met, construction of wells and activities that extract, consume, or otherwise use any groundwater are prohibited on the Property.

d. Restrictions on Construction. Construction over areas where a vapor intrusion pathway may occur is prohibited unless such construction includes adequate mitigation measures for the vapors, as demonstrated in a plan approved in writing by EPA.

e. Fencing and Security. Fences and signs to secure the Property shall be maintained until the written consent of the EPA is obtained to modify such features.

f. *[Settling Work Parties shall insert any other restrictions set forth in Paragraph 25 (Land, Water, or Other Use Restrictions) of the Consent Decree that are included within the Institutional Controls Implementation and Assurance Plan (“ICIAP”) approved by EPA in accordance with Section 6 (Deliverables) of the SOW, which is attached at Appendix B to the Consent Decree]*

2. Requirements for Notice to EPA Following Transfer or a Specified Interest in, or Concerning Proposed Changes in the Use of, Applications for Building Permits for, or Proposals for any Work Affecting Contamination on the Property. Neither Owner nor Holder (nor any member of the Holder) shall transfer any interest in the Property or make proposed changes in the use of the Site, or make applications for building permits for, or proposals for any work in the Site without first providing notice to EPA and obtaining any approvals or consents thereto which are required under Sections V (General Provisions), VI (Performance of Work), VII (Remedy Review), VIII (Property Requirements), XIII (Notices and Submissions) or Appendix B (Statement of Work) of the Consent Decree.

3. Access to the Site. Pursuant to the Amended Environmental Covenant EPA and the Settling Work Parties (listed in paragraph 4 of the Amended Environmental Covenant), their successors and assigns, and their respective officers, employees, agents, contractors and other invitees (collectively “Access Grantees”) shall each have unrestricted right of access to the Property to undertake the Permitted Uses described in Paragraph 4 below and, in connections therewith, to use all roads, drives and paths, pave or unpaved, located on the Property for ingress to or egress from portions of the Property (collectively “Access Roads”). The right of access granted under the Amended Environmental Covenant shall be irrevocable while the covenant remains in full force and effect.

4. Permitted Uses. The right of access granted under the Amended Environmental Covenant shall provide Access Grantees with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to the Consent Decree or the purchase of any part of the Property, including, but not limited to, the following activities:

- a. Monitoring the “Work,” as defined under Paragraph 4.ss of the Consent Decree;
- b. Verifying any data or information submitted to the United States;
- c. Conducting investigations regarding contamination at or near the Site;
- d. Obtaining samples;

- e. Assessing the need for, planning, or implementing additional response actions at or near the Site;
- f. Assessing implementation of quality assurance and quality control practices as defined in the approved construction quality assurance quality control plan as provided in Appendix B (Statement of Work) of the Consent Decree;
- g. Implementing the Work pursuant to the conditions set forth in Paragraph 76 (Work Takeover) of the Consent Decree;
- h. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Work Parties or their agents, consistent with Section XIX (Access to Information) of the Consent Decree;
- i. Assessing compliance with the Consent Decree by Settling Parties, as defined in Paragraph 4.hh of the Consent Decree;
- j. Determining whether the Property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Consent Decree; and
- k. Implementing, monitoring, maintaining, reporting on, and enforcing any Institutional Controls, as defined under Paragraph 4.k of the Consent Decree.

Appendix F

2019 Property Title Review

ATTORNEY'S OPINION OF TITLE

TO: The Frink Law Firm LLC
Order No.: 2018-2056

We hereby certify that we have made a thorough examination of the records of the County or Counties in which the real estate described at Item II is located, as disclosed by the public indices relating to the premises. We certify that the title, as appears from the record, is marketable and free from encumbrances except those matters set forth at Item III.

ITEM I

We find fee simple title to the real estate described in Item II to be vested in:

The Keystone Gravel Company aka The Keystone Gravel Co.

By virtue of the following:

The Keystone Gravel Company acquired caption premises by General Warranty Deed from Val Lee and Jennie F. Lee, husband and wife, dated November 1, 1947 and filed for record December 8, 1947 and recorded in Deed Volume 1259 Page 120 and General Warranty Deed from John I. Geiger, married, Laura A. Geiger, his wife signs to release dower, dated April 15, 1921 and recorded in Deed Volume 529, Page 452 of the Montgomery County, Ohio records as to Parcel R72 16703 0016.

The Keystone Gravel Company, an Ohio Corporation acquired caption premises by Quitclaim Deed from LMS Investments, Incorporated, an Ohio corporation, dated June 14, 1997 and filed for record June 17, 1997 and recorded in Deed Microfiche No. 97-403 E10 of the Montgomery County, Ohio records as to Parcel R72 16703 0018.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from Philipp Deger and Johanna Deger, husband and wife, dated November 16, 1925 and filed for record November 20, 1925 and recorded in Deed Volume 439 Page 379 of the Montgomery County, Ohio records as to Parcel R72 16703 0017.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from The Rice Realty Company, a corporation, of Dayton, Ohio dated May 15, 1922 and filed for record June 3, 1922 and recorded in Deed Volume 481 Page 300 of the Montgomery County, Ohio records as to Parcel R72 16703 0021

The Keystone Gravel Company acquired caption premises by General Warranty Deed from Rudolph C. Glaser and Adele Glaser, husband and wife, dated December 20, 1939 and filed for record December 20, 1939 and recorded in Deed Volume 886 Page 64 of the Montgomery County, Ohio records as to Parcel R72 16704 005,6,13.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from James R. Lee, married and Frances G. Lee, his wife who releases dower, dated December 26, 1951 and filed for record December 31, 1951 and recorded in Deed Book 1494, Page 456 of the Montgomery County, Ohio records as to Parcel R72 16704 0011; R72 16704 0012; R72 16704 0014.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from James R. Lee and Frances G. Lee, husband and wife, dated July 23, 1946 and filed for record December 8, 1947 and recorded in Deed Volume 1259, Page 122 of the Montgomery County, Ohio records as to Parcel R72 16704 0004.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from Clarence Weitzel and Petronella Weitzel, husband and wife, dated June __, 1944 and filed for record June 28, 1944 and recorded in Deed Volume 1056, Page 423 of the Montgomery County, Ohio records as to Parcel R72 16704 0051.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from D. S. Foland and Alice M. Foland, husband and wife, dated June 10, 1939 and filed for record February 19, 1946 and recorded in Deed Volume 1138, Page 526 of the Montgomery County, Ohio records as to Parcel R72 16704 0049.

The Keystone Gravel Company acquired caption premises by General Warranty Deed from Magdalena Ballmann aka Lena Ballmann, unmarried; Gabriel F. Ballmann, married and Viola M. Ballmann, his wife releases dower; Adam Ballmann Jr., married and Martha Ballmann, his wife releases dower; Lawrence Ballmann, married and Edith Ballmann, his wife releases dower; Joseph Ballmann, married and Mary P. Ballmann, his wife releases dower; Philip Ballmann, married and Lucille Ballmann, his wife releases dower; Harry Ballmann, married and Kathryn Ballmann, his wife releases dower; Emma Ballmann Grusenmeyer, married and Vincent Grusenmeyer, her husband releases dower; Helen Ballmann Koerner, married and Clarence Koerner, her husband releases dower; Viola Ballmann Stember, married and Lawrence Stember, her husband releases dower; and John Ballmann, married and Emma Ballmann his wife releases dower dated November 7, 1949 and filed for record November 7, 1949 and recorded in Deed Volume 1364 Page 556 of the Montgomery County, Ohio records as to Parcels R72 16704 0055; R72 16704 0055; R72 16704 0064; R72 16714 0023.

ITEM II

The real estate examined herein described as follows:

See Exhibit A Attached

ITEM III

We find liens, claims, objections and defects affecting the title to the above real estate including open mortgages, leases, pending suits, judgments, certificates of judgment, executions, restrictions, building lines, easements and rights of way, to be as follows:

1. Affidavit dated August 21, 2001 and filed August 29, 2001 in Microfiche No. D01-598C06 Michael Samples, Affiant, states Keystone Gravel Company is owner of lots numbered 74599, 74603, 74604, 74618, 74620, 74622, 74623, 74619, 74621, 74624, 74633, 74634, 74635, 74636, and 79327 City of Dayton; Richard S. Young and Linda A. Young are owners of lot number 74626 City of Dayton. Said lots are subject to the Directors Final Findings and Orders issued by the Director of the OEPA on January 31, 1995 relating to the investigation of the Valleycrest Landfill that was formerly located on said lots. Said lots have been designated as superfund site by the U.S. E.P.A., etc. (Copy attached)
2. Amended and Restated Access agreement dated May 9, 2006, effective May 9, 2006 in Instrument No. M06-041600 between Keystone Gravel Company, an Ohio Corporation (Keystone) and Valleycrest Landfill Site Group (Group). Keystone is the owner of Lots 74599, 74600, 74603, 74604, 74618, 74619, 74620, 74621, 74622, 74623, 74624, 79327, 74633, 74634, 74635, and 74636 City of Dayton which makes up the Valleycrest Landfill Site. The Group consists of a number of companies who are subject to the Final Findings and Orders issued by the Ohio E.P.A. on January 31, 1995, etc. (Copy attached)
3. No open mortgages were found of record.
4. NOTE: Lots 74603, 74618, 74620, 74624 and 74635 are all landlocked.
5. Taxes and assessments for all lots examined are past due and delinquent, with penalties and interest due and payable with pending court costs.
6. All parcels herein examined are Tax Lien Sale eligible.
7. Right of Way and easement to overhang and cross over with and by a line for the transmission and distribution of electric energy granted to The Dayton Power and Light Company as recorded in Deed Volume 958, Page 527 of the Montgomery County, Ohio records as to Lot 74604 COD.
8. Environmental Covenant as recorded in Deed Instrument 06-092070 of the Montgomery County, Ohio records

9. Environmental Covenant as recorded in Deed Instrument 07-089430 of the Montgomery County, Ohio records.
10. Common Pleas Case 2019CV5284, Montgomery County, Ohio, Order filed January 20, 2020 granting motion to close case and retain jurisdiction on Todd Bryant and reopen in the future.

ITEM IV

This examination covers a period of 50 years to the date of this report. Liens, claims and defects, if any, prior to that date are not covered by this examination.

This examination does not cover (a) matters not of record, (b) rights of persons in possession, (c) questions which a correct survey or inspection of the premises would disclose, (d) rights to file mechanic's lien, (e) taxes and assessments which become due and payable after the date hereof, (f) special taxes and assessments which are not shown on the County Auditor's and Treasurer's records on the date hereof, (g) zoning and other governmental regulations, (h) financing statements, security agreements and other filings in accordance with the Uniform Commercial Code, and (i) liens asserted by the United States or State of Ohio, their agencies and officers under the Ohio Solid Hazardous Waste Disposal Act, the Federal Superfund Amendments, the Racketeer Influenced and Corrupt Organization Act and Receivership Liens, unless the lien is also filed in the public records of the County in which the real estate is located.

This examination is certified as of May 13, 2020 at 07:59 AM.

**HEDRICK & JORDAN CO.
A Legal Professional Association**

By: _____

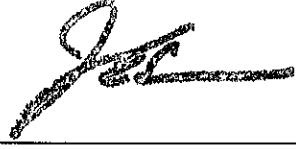

James E. Hedrick, Esquire

EXHIBIT "A"

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74599 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-3-16

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74600 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-3-18

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74603 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-3-17

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74604 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-3-21

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lots numbered 74618, 74620, and 74622 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-4-5, 6 and 13

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lots numbered 74619, 74621, and 74623 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-01-11, 12, 14

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74624 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-4-4

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74633 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-4-51

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lot numbered 74634

of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-4-49

Situate in the City of Dayton, County of Montgomery, State of Ohio and being lots numbered 74635 and 74636 and 79327 of the consecutive numbers of lots on the revised plat of the said City of Dayton, Ohio.

Parcel No. R72-167-4-55, 64, R72-167-14-23

Appendix G

2019 Order Appointing Receiver for Keystone

IN THE COMMON PLEAS COURT OF MONTGOMERY COUNTY, OHIO
CIVIL DIVISION

	:	CASE NO.:
IN THE MATTER OF THE KEYSTONE GRAVEL COMPANY	:	JUDGE:
	:	ORDER APPOINTING TODD E. BRYANT AS RECEIVER FOR THE KEYSTONE GRAVEL COMPANY

This matter is before the Court on the Petition for Appointment of Receiver ("Petition") to act on behalf of The Keystone Gravel Company ("Keystone") filed by the Valleycrest Landfill Site Group ("VLSG"). The VLSG is an Ohio unincorporated nonprofit association of parties that have executed a Consent Decree with the United States Environmental Protection Agency ("USEPA") to remediate the North Sanitary ("Valleycrest") Landfill in Dayton, Ohio.

Upon review of the accompanying Petition, this Court finds that the VLSG has shown that the appointment of a receiver is necessary to carry out the terms of its settlement agreement with Keystone dated April 3, 2006 ("Settlement Agreement") and to act on behalf of Keystone, and hereby grants said Petition. This Court HEREBY APPOINTS Todd E. Bryant as receiver of Keystone.

Receiver is hereby irrevocably granted full power and authority to carry out Keystone's obligations to transfer the real estate at the direction of VLSG and to execute any and all deeds

and documents necessary to transfer the real estate at any time to any party that is approved by USEPA as a New Site Owner pursuant to Paragraph 20.b of the Consent Decree filed in the matter captioned *United States of America v. Bridgestone Americas Tire Operations, LLC, et al.*, in the Southern District of Ohio, Western Division (Case No. 3:18-cv-00054) on February 27, 2018, which set forth the agreement for the cleanup of Valleycrest.

Receiver is also hereby irrevocably granted full power and authority to enter into amended environmental covenants pursuant to Paragraph 20.a(1) of the Valleycrest Consent Decree.

This Court shall retain jurisdiction over this matter to obviate the need to open a new case that relates to the Receiver's duties addressed herein, including the Receiver's duties that will need to be performed in order to carry out the terms of the Settlement Agreement and the Receiver's duties that will need to be performed in order to carry out the terms of the Valleycrest Consent Decree.

SO ORDERED:



General Division
Montgomery County Common Pleas Court
41 N. Perry Street, Dayton, Ohio 45422

Case Number:
2019 CV 05284

Case Title:
VALLEYCREST LANDFILL SITE GROUP vs THE
KEYSTONE GRAVEL COMPANY

Type:

Order:

So Ordered,

Timothy N. O'Connell

Appendix H

Draft Consent Agreement

**CONSENT AGREEMENT
FOR ACCESS TO, AND LIMITATIONS UPON USE OF, AFFECTED PROPERTY
RELATED TO THE NORTH SANITARY LANDFILL SUPERFUND SITE
IN THE CITY OF DAYTON, OHIO**

Address of Affected Property: _____

Parcel Number(s) of Affected Property: _____

WHEREAS, _____, (“Transferee”) plans to purchase the real property identified above (“Affected Property”) from _____ (“Owner”) on or near the ____ day of _____, 20__;

WHEREAS, Owner is as Settling Defendant under a Consent Decree that was entered by the Federal District Court for the Southern District of Ohio (“Court”) on the _____ day of _____, 2017 and docketed as United States v. Bridgestone Americas Tire Operations, LLC et al., Docket No. _____ (S.D. Ohio) (*hereinafter* “Consent Decree”);

WHEREAS, the Consent Decree provides for, among other things, various response actions to be performed at the North Sanitary Landfill Superfund (“Site”) in the City of Dayton, Ohio, to address Site-related contamination in soils, landfill gas, and groundwater at the Site;

WHEREAS, the U.S. Environmental Protection Agency (“EPA”) has determined that implementation of the response actions at the Site requires (1) access to the Affected Property, (2) landuse, or water use restrictions relating to the Affected Property, and/or (3) easements or covenants that limit land, water, or other resource use at, and/or provide access rights to, the Affected Property;

WHEREAS, the Consent Decree prohibits Owner from transferring the Affected Property to Transferee unless and until certain conditions are met under Paragraph 21 of the Consent Decree;

NOW WHEREFORE, in advance of the transfer of the Affected Property, Transferee hereby consents and agrees that, upon taking title to the Affected Property, Transferee shall:

1. Grant to officers, employees, contractors, and authorized representatives of EPA or the Settling Work Parties (as defined under Paragraph 4.ii of the Consent Decree) the right to enter

and have continued access to the Affected Property for the purpose of performing any and all response actions required under, or relating to, the Consent Decree;

2. Refrain from any and all uses of the Affected Property that:

- a. Interfere with, or otherwise could harm, the remedial action selected by EPA for the Site;
- b. Could result in any person being exposed to Site-related contaminants in surface and subsurface soils, landfill gas and groundwater; or
- c. *[Add subparagraphs, as appropriate, to list all other land, water, or other use restrictions applicable to the Affected Property under (a) the Institutional Controls Implementation and Assurance Plan ("ICIAP") approved by EPA under the Consent Decree, (b) the environmental covenant signed by the Owner with respect to the Affected Property, or (c) State or local laws, regulations, zoning restrictions, or other governmental controls or notices]; and*

3. Consent to the authority of the Court, upon motion filed by the United States or the Setting Work Parties, to enter any order necessary to enforce this consent agreement.

By my signature below, I certify that I have authority to execute this consent agreement on behalf of Transferee and that I do so voluntarily with knowledge of Transferee's right to refuse and without threat or promises of any kind.

Date

Signature

Print Name

[Insert here appropriate Ohio Notarial Certificate depending upon whether the Transferee is (1) an individual acting in his or her own right, (2) a corporation, or (3) other type of public or private entity]

APPENDIX E

OPERATION AND MAINTENANCE MANUAL

PRELIMINARY OPERATIONS AND MAINTENANCE MANUAL

NORTH SANITARY LANDFILL DAYTON, OHIO

Submitted to

USEPA



Submitted by

Geosyntec 
consultants

engineers | scientists | innovators

931 Chatham Lane, Suite 103
Columbus, Ohio 43221

September 2021

April 2021

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Appendix B	LFG Flare Skid O&M Manual (to be provided after RA completion)

LIST OF ACRONYMS

AST	above ground storage tank
BMP	best management practice
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIP	Community Involvement Plan
CQA/QCP	Construction Quality Assurance/Quality Control Plan
HASP	Health and Safety Plan
ICIAP	Institutional Controls Implementation and Assurance Plan
ICs	institutional controls
LFG	landfill gas
NAPL	non-aqueous phase liquid
Ohio EPA	Ohio Environmental Protection Agency
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
PS	performance standard
PSVP	Performance Standards Verification Plan
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance and quality control
RA	Remedial Action
RD	Remedial Design
SOP	standard operating procedure
SOW	Statement of Work
SWMP	Site Wide Monitoring Plan
SWP	Settling Work Parties
UECA	Uniform Environmental Covenants Act
USEPA	United States Environmental Protection Agency

SECTION 1

INTRODUCTION

This Operation and Maintenance Manual (O&M Manual) for the North Sanitary (a.k.a. Valleycrest) Landfill (Site) in Dayton, Ohio was developed per Sections 1.3d.(2) and 6.7f of Appendix B (Statement of Work [SOW] for Remedial Design and Remedial Action [RD/RA]) of the 2018 Consent Decree (CD) for the Site.

The Site is a former landfill currently owned by The Keystone Gravel Company, a cancelled company in the State of Ohio. The Site (approximately 102 acres in size) was originally operated as a sand and gravel quarry between approximately 1935 and the 1970s. Industrial and municipal wastes were deposited in the eastern two-thirds of the Site from about 1966 to 1975. Foundry sand and fly ash were deposited in the disposal areas located in the extreme western third of the Site from the early 1970s until 1991. The Site is bifurcated, roughly in half, by Valleycrest Drive. The Site location is shown on **Figure 1-1**.

Per SOW Section 1.3d.(2):

Settling Work Parties shall develop and implement operation and maintenance (“O&M”) manuals for all remedial measures implemented at the Site. Specifically, Settling Work Parties shall develop and implement O&M manuals for the (i) landfill cap systems, (ii) the LFG system, (iii) the leachate collection, treatment, and disposal systems, (iv) the stormwater collection, retention, and infiltration system, and (v) NAPL collection and removal.

Per SOW Section 6.7f, the O&M Manual must include:

- (1) *Description of PS required to be met to implement the ROD;*
- (2) *Description of activities to be performed: (i) to provide confidence that PS will be met; and (ii) to determine whether PS have been met;*
- (3) *O&M Reporting. Description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports concerning emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and State Agencies;*
- (4) *Description of corrective action in case of system failure, including (i) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve PS; (ii) analysis of vulnerability and additional resource requirements should a failure occur; (iii) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (iv) community notification requirements; and*
- (5) *Description of corrective action to be implemented in the event that PS are not achieved; and a schedule for implementing these correction actions.*

This document has been prepared as part of the Preliminary (30%) RD and therefore will require revision as part of completing the Pre-Final (95%) and Final RD.

The performance standards (PS) required to be met are provided in the Performance Standards Verification Plan (PSVP). Descriptions of activities to be performed to assess if the PSs will be or have been met are provided in the Site Wide Monitoring Plan (SWMP). Corrective actions in case of system failure or not meeting PSs are provided in this O&M Manual.

This O&M Manual describes Site features and provides the recommended frequencies of Site inspections, maintenance, and monitoring. It also provides example forms (to be provided as part of the Pre-Final RD) that may be used by field personnel for inspection, reporting, and documentation. It was developed per the United States Environmental Protection Agency's (USEPA's) May 2001 "Operation and Maintenance in the Superfund Program" guidance document and is organized per Highlight 5 (Typical O&M Manual Sections) as follows:

- Section 2, *Remedy Description*, provides an overview of the remedy components;
- Section 3, *Personnel*, describes the roles and responsibilities of O&M personnel;
- Section 4, *Permits, Standards, and Approvals*, describes permits, standards, and approvals that may be required during O&M;
- Section 5, *Records*, provides a description of the required reports and how O&M records will be maintained;
- Section 6, *Community Involvement*, describes the role of the Settling Work Parties (SWPs) in community involvement;
- Section 7, *Laboratory Testing Requirements*, provides the requirements of laboratory testing during O&M;
- Section 8, *Maintenance*, provides the requirements for O&M of the landfill cap and stormwater management system, landfill gas (LFG) management system, leachate management system, non-aqueous phase liquid (NAPL) recovery system, monitoring network, and institutional controls; and
- Section 9, *Emergency Operating and Response Program*, provides the procedures for addressing emergencies or unexpected situations and the appropriate responses.

SECTION 2

REMEDY DESCRIPTION

This O&M Manual focuses on key elements of the remedy for the Site which require ongoing O&M activities as discussed in the following sections:

Section 2.1 Landfill Cap and Stormwater Management System

Section 2.2 LFG Management System

Section 2.3 Leachate Management System

Section 2.4 NAPL Recovery System

Section 2.5 Monitoring Network

Section 2.6 Institutional Controls

2.1 Landfill Cap and Stormwater Management System

The final cover system includes the following components:

- Composite Cap System – the cap consists of (from top to bottom) the following components or layers:
 - 6-inch vegetative layer;
 - 6-inch common fill;
 - 12-inch sand drainage layer having a minimum permeability of 1×10^{-3} cm/sec (totaling 24-inch cap protection layer);
 - Flexible membrane liner;
 - Geosynthetic clay liner; and
 - 6-inch engineered subbase.
- Landfill Grading – an “inverted sawtooth” pattern is planned for grading of the final landform. The minimum height of the final landform will be a function of optimizing the slope grade to promote positive stormwater drainage. Final landform slope grades are estimated to be approximately 2%.
- Stormwater Management – stormwater runoff and water from the sand drainage layer will be managed at the Site by directing flow into stormwater letdown and conveyance components, and ultimately into the stormwater retention pond to be constructed in the southwestern portion of the property for storage and infiltration. Surface water

management features (see **Figure 2-1**) to manage rainfall runoff and control erosion of the cap system include:

- Stormwater ditches;
- Detention basins; and
- Erosion controls.

2.2 LFG Management System

The existing LFG system will be decommissioned and replaced, although reuse of some portions will be evaluated for inclusion as part of new LFG system. The new LFG system will be installed using a phased approach to allow for LFG collection during RA activities and protection for any on-Site and off-Site impacts during system transition. Therefore, activities will include O&M of the existing system, an interim hybrid system, and finally the completed final designed system.

The following components of the LFG system will require O&M (see **Figure 2-2**):

- Dual-phase leachate and LFG extraction wells;
- LFG conveyance piping;
- LFG condensate knock-out sumps;
- Condensate lift station on the west side of Valleycrest Drive; and
- Central candlestick flare.

2.3 Leachate Management System

The leachate management system will consist of a network of dual-phase extraction wells across the Site and a system of forcemain piping which conveys leachate to an above ground storage tank (AST).

The following components of the leachate management system will require O&M (see **Figure 2-2**):

- Dual-phase leachate and LFG extraction wells;
- Compressed air compressor(s) to run the downhole pneumatic extraction pumps;
- Pneumatic pumps, power supplies, and forcemain to convey leachate to an AST;
- Leachate and compressed air conveyance lines and associated valves, vaults and clean-outs;
- Leachate lift station(s);
- AST and load-out pad;
- Site access road for trucking leachate to an off-Site facility.

Following initiation of leachate extraction, liquid waste characterization will be needed to identify a suitable disposal facility. O&M activities will include continued monitoring and characterization of extracted liquids.

2.4 NAPL Recovery System

NAPL monitoring, removal, and disposal O&M tasks include:

- Monitoring for the presence of NAPL in monitoring wells NSL-55L and NSL-54L and leachate extraction wells on a periodic basis;
- Removal, containerization, and sampling (as necessary) of accumulated NAPL, by mechanical (e.g., bailer) or passive (e.g., absorbent socks) means. Containerized NAPL removal will be performed on a periodic basis for off-Site disposal at a licensed facility permitted to accept the material; and
- Evaluation of collected data against criteria set forth in the approved PSs.

2.5 Monitoring Network

A network of groundwater monitoring wells will be used to evaluate groundwater compliance. As part of remedy implementation, additional groundwater monitoring wells will be installed to provide additional data coverage in areas that may not be covered by existing groundwater monitoring wells.

A network of LFG probes will be used to evaluate LFG compliance. As part of remedy implementation, additional LFG probes will be installed at the Site boundary to provide appropriate coverage for occupied structures in accordance with the Explosive Gas Management Plan that is provided in the SWMP.

A preliminary SWMP has been developed and will be updated as part of the Pre-Final RD.

2.6 Institutional Controls

Institutional controls (ICs) and a Uniform Environmental Covenants Act (UECA) environmental covenant were established to secure, safeguard, and restrict access to the Site and ensure long-term care of the Site and remedy. Maintenance of these controls is key for the long-term O&M of the implemented remedies which are discussed in more detail in the Institutional Controls Implementation and Assurance Plan (ICIAP).

SECTION 3

PERSONNEL

The project personnel organization chart for the O&M is provided on **Figure 3-1** (to be provided as part of the Pre-Final RD). The duties, responsibilities, and authorities of the entities and personnel positions as related to the O&M program are described in this section.

3.1 Responsibilities and Duties

This section provides a description of the responsibilities and duties of the personnel or positions required to implement the O&M phase of the remedy.

Regulatory Agencies: The regulatory agency providing oversight for this project is the USEPA Region 5. At the discretion of the USEPA, this oversight will be supported by the Ohio Environmental Protection Agency (Ohio EPA). These agencies and their designated representatives (identified on **Figure 3-1**) will provide regulatory oversight on the O&M phase of the project. Project deliverables (e.g., inspection and monitoring reports) will be submitted to the USEPA and Ohio EPA for review and comment as described in this O&M Manual.

SWPs: The SWPs will contract with the O&M Manager for implementation of the O&M services. The SWPs will designate a Project Representative(s) to serve as the primary point of contact with the agencies and will provide overall management of the work.

O&M Manager: The O&M Manager will be the company that contracts with the SWPs to implement the O&M services for the Site. The O&M Manager will designate a person or persons (the O&M Manager) to manage inspections, maintenance, and monitoring, including an analytical laboratory.

Quality Assurance/Quality Control (QA/QC) Officer: The O&M Manager will use the services of a person or firm that will be responsible for QA/QC of O&M services. This person will be responsible to ensure laboratory data are properly validated, draft reports are reviewed, and for periodic audits. The QA/QC Officer shall be independent of the O&M Manager and its field personnel and will have an indirect line of reporting to the SWPs Representative.

3.2 Qualifications and Training

Qualification and training requirements for O&M personnel (O&M Manager and QA/QC Officer) will be provided in the Pre-Final RD.

3.3 Health and Safety

Health and safety procedures to be followed during O&M activities will be in accordance with the Health and Safety Plan (HASP). The purpose of the HASP is to establish personnel protective standards, safety practices, and safety procedures for use during O&M.

Occupational Safety and Health Administration (OSHA) training and medical monitoring requirements are applicable to workers that may be exposed to hazardous wastes or hazardous substances. Therefore, the training and monitoring requirements would not normally be required for maintenance activities such as mowing and erosion repairs.

The HASP for the O&M activities where workers may be exposed to hazardous wastes and substances will include (but not be limited to):

- Description of precautions for Site personnel, including necessary personal protective equipment and action levels relevant to Site activities including long-term monitoring, mower safety, construction safety, and biological issues (snakes, ticks, etc.);
- Required monitoring, disposal procedures;
- Site controls and work zones;
- Confined space entry requirements;
- Decontamination procedures;
- Emergency Response Plan;
- Training and medical monitoring requirements; and
- Safety tasks in event of systems failure.

SECTION 4

PERMITS, STANDARDS, AND APPROVALS

Section 121(e) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Section 300.400(e) of the National Oil and Hazardous Substance Pollution Contingency Plan specifies that no permits necessary for implementation of the RA are required for activities conducted entirely within or in very close proximity to the areal extent of impacts (i.e., the Site). Accordingly, Federal, State, county, and local permits are not required to implement the RA, but the RD will provide for compliance with Applicable or Relevant and Appropriate Requirements and meeting substantive or equivalent permitting requirements.

Examples of permit equivalency would be requirements related stormwater best management practices (BMPs) as required by National Pollutant Discharge Elimination System permit.

SECTION 5

RECORDS

This section provides a description of the requirements for reporting and record-keeping for O&M activities and how the implementation of the O&M Manual will be verified, documented, and reported.

5.1 Record-Keeping

5.1.1 Location

During the post-closure period, all O&M records will be stored at a designated location (to be determined) by O&M personnel using standard filing methods which will allow for easy access by O&M personnel, the SWPs, or scheduled visits by regulatory personnel.

5.1.2 Record-Keeping Elements

Record-keeping during the post-closure period will consist of: (i) Site records that will not change or will have minimal changes during the period; and (ii) records or documents that will be updated during the period. All stored records will be indexed and labeled using standard procedures for easy accessibility for all users. A list of project records (to be maintained at a designated location to be determined) that will have minimal or no changes during the post-closure period is provided below.

- Site plan showing access roads, location of gates, locations of areas prohibited from access;
- USEPA-approved Final 100% Design Report including subsequent design changes. This includes the approved Design Report, drawings, and specifications, the Construction Quality Assurance/Quality Control Plan (CQA/QCP), HASP, and Quality Assurance Project Plan (QAPP); and
- O&M Manual, including as-built drawings of all remedial systems.

Project records that will be updated during the post-closure period include: (i) project communication files; (ii) inspection/maintenance records; and (iii) monitoring/analytical records. These are described in subsequent sections.

5.1.3 Correspondence Files

Post-closure period correspondence files will include transmittals between the USEPA, Ohio EPA, the SWPs, consultants, and contractors. These documents will be updated and filed on an as-needed basis.

O&M personnel will provide the SWPs with signed inspection sheets and operation logs to verify that all O&M activities have been carried out. O&M personnel will maintain (at the designated O&M record-storage location) a complete copy of the O&M Manual, all O&M inspection records, and other pertinent forms and documents.

5.1.4 Inspection/Maintenance Records

Appendix A provides blank O&M inspection sheets for the project. The inspection sheets will be completed by inspection personnel during Site visits and signed before leaving the Site. These sheets will be signed by the inspector and then reviewed and co-signed by the O&M Manager. The originals will be filed with the O&M Manager and copies will be kept in the designated location for access by all project personnel.

For miscellaneous maintenance, records will be kept that include the following information:

- Maintenance record number, using a system such as “M-year-month-day” (“M” designates a “maintenance” record sheet);
- Date of maintenance;
- O&M person responsible at the Site;
- Site area (security fence, landfill, etc.);
- Feature maintained, including specific location;
- Reference to applicable drawings and specifications;
- Equipment and/or personnel/contractors used;
- Any pertinent materials or equipment tests;
- Copies of invoices/receipts; and
- Signatures of the O&M Site person responsible (e.g., the inspector) and the O&M Manager confirming the maintenance met the specifications, drawings, and CQA/QCP.

Photographic documentation will serve as a pictorial record of Site conditions, problems, and mitigation activities. Additional photographs of items of significance will also be taken. These photographs will be available for review at any time by the O&M Manager, the SWPs, and regulatory agencies. Selected photographs may be reproduced as part of the Annual O&M Report.

5.1.5 Monitoring/Analytical Record-Keeping

Monitoring/analytical records will include chain-of-custody forms, sampling sheets, shipping receipts, laboratory results, and laboratory and field QA/QC records. These records will be kept

by the O&M Manager with the central project file. Laboratory information, such as test data sheets, QA/QC, etc., will be kept by the laboratory in accordance with the QAPP.

5.2 Reporting Requirements

Environmental Monitoring Reports will be submitted to the USEPA and Ohio EPA. The contents of the Environmental Monitoring Reports will be provided as part of the Pre-Final RD.

SECTION 6

COMMUNITY INVOLVEMENT

As stated in SOW Section 2.1, the USEPA has lead responsibility for developing community involvement activities at the Site and previously developed a Community Involvement Plan (CIP).

Per SOW Sections 2.1 and 2.2:

- 2.1** *If requested by EPA, Settling Work Parties shall support EPA's community involvement activities. This may include providing online access to initial submissions and updates of plans, reports or other deliverables to, (i) Technical Assistance Grant recipients and their advisors, and (ii) other entities in order to provide them with a reasonable opportunity for review and comment. EPA may describe in its CIP Settling Work Parties' responsibilities for community involvement activities. All community involvement activities conducted by Settling Work Parties at EPA's request are subject to EPA's oversight.*
- 2.2** *If requested by EPA, Settling Work Parties shall, within 15 days, designate and notify EPA of Settling Work Parties' Community Involvement (CI) Coordinator. Settling Work Parties may hire a contractor for this purpose. Settling Work Parties' notice must include the name, title, and qualifications of the CI Coordinator. Settling Work Parties' CI Coordinator is responsible for providing support regarding EPA's CI activities, including coordinating with EPA's CI Coordinator regarding responses to the public's inquiries about the Site.*

SECTION 7

LABORATORY TESTING REQUIREMENTS

Laboratory testing requirements are provided in the SWMP and QAPP.

SECTION 8

MAINTENANCE

Maintenance requirements are discussed in the following sections:

- Section 8.1 Landfill Cap and Stormwater Management System
- Section 8.2 LFG Management System
- Section 8.3 Leachate Management System
- Section 8.4 NAPL Recovery System
- Section 8.5 Monitoring Network
- Section 8.6 Institutional Controls

For further remedy component details, please refer to **Section 2** and the *Remedial Design Report (Geosyntec, 2021)*.

Detailed procedures will be developed and presented in this section as part of the Pre-Final RD.

8.1 Landfill Cap and Stormwater Management System

8.1.1 Systems Description

This section is focused on the inspection and maintenance activities for: (i) the final cover systems; (ii) stormwater BMPs on the final cover and around the landfill perimeters; (iii) final cover access roads; and (iv) perimeter fences and gates.

8.1.2 Inspection

The system will be inspected on a routine basis to evaluate the need for maintenance. Routine inspections allow for proactive identification and mitigation of potential issues.

Non-routine inspections will be conducted immediately after significant rainfall events to identify any condition that would require urgent repair or maintenance.

A Site inspection standard operating procedure (SOP) will be developed and presented in this section as part of the Pre-Final RD, and will provide detail regarding frequency, scope, and record-keeping (maps, photographs, notes). Major components anticipated to be included in the Site inspection SOP are listed below and will be provided as part of the Pre-Final RD.

Routine maintenance will include mowing, re-seeding, and stormwater BMP maintenance.

8.1.2.1 Landfill Top Slopes

8.1.2.2 Landfill Perimeter Slopes

8.1.2.3 Stormwater Conveyance Structures

8.1.2.4 Access Road

8.1.2.5 Perimeter Fences and Gates

8.1.3 Maintenance

Major components anticipated to be included in the Site maintenance activities are listed below and will be provided as part of the Pre-Final RD.

8.1.3.1 Mowing

8.1.3.2 Repair of Stressed Vegetation

8.1.3.3 Burrow Repair and Vector Removal

8.1.3.4 Erosion Repair

8.1.3.5 Fence & Gate Repair

8.1.3.6 Access Road Repair

8.1.4 Schedule for O&M Tasks

A schedule for O&M tasks will be presented in this section as part of the Pre-Final RD.

8.2 LFG Management System

The following section provides an outline for LFG management system O&M including operation, inspection/maintenance, troubleshooting, monitoring, and schedule.

8.2.1 System Description

The LFG management system consists of extraction wells, conveyance piping, a condensate lift station, and a central flare. LFG system operations manuals will be supplied by the Contractor's vendor/subcontractor. The vendor-supplied and approved LFG system manuals will be provided in this section as part of the Pre-Final RD.

8.2.2 Operating Procedures

Detailed operating procedures will be provided as part of the Pre-Final RD.

8.2.2.1 Normal Operation

8.2.2.2 Periodic Shut-Down and Start-Up

8.2.3 Inspection/Maintenance & Troubleshooting

Detailed operating procedures will be provided as part of the Pre-Final RD.

8.2.4 Monitoring

A schedule for routine monitoring will be provided as part of the Pre-Final RD.

8.2.5 Preventative Maintenance Schedule

A preventative maintenance schedule will be provided as part of the Pre-Final RD.

8.3 Leachate Management System

The following section outlines leachate management system O&M including operation, disposal and discharge, inspection/maintenance, troubleshooting, monitoring, and schedule.

8.3.1 System Description

The leachate management system consists of extraction wells, conveyance piping, a lift station, and AST and load-out pad.

Leachate management system operations manuals will be supplied by the Contractor's vendor/subcontractor. The vendor-supplied and approved leachate system manuals will be provided in this section as part of the Pre-Final RD.

8.3.2 Operation

Detailed operating procedures will be developed as part of the Pre-Final RD. Anticipated topics are provided below.

8.3.2.1 Downhole Pump (Within Dual-Phase Extraction Wells) Operation

8.3.2.2 Procedure for Transfer Operation to Leachate Hauling Trucks

8.3.2.3 Collection Tank Pad Stormwater Removal

8.3.3 Off-Site Disposal and Discharge Compliance

Procedures for off-Site disposal and discharge compliance will be developed as part of the Pre-Final RD.

8.3.3.1 Off-Site Commercial Discharge Approvals/Permitting

8.3.3.2 Transportation Requirements and Compliance Sampling

8.3.3.3 Compliance Reporting

8.3.4 Inspection/Maintenance & Troubleshooting

Inspection/maintenance and troubleshooting for the leachate management system will be provided as part of the Pre-Final RD.

8.3.5 Monitoring

Monitoring procedures for the leachate management system will be provided as part of the Pre-Final RD.

8.3.6 Preventative Maintenance

Procedures for maintenance activities and schedule for performing activities will be provided as part of the Pre-Final RD.

Table 8-3
Leachate Management System Inspection and Maintenance Schedule
North Sanitary Landfill Site, Dayton, Ohio

Item	Inspection	Frequency
1	Site Inspections	

Item	Maintenance	Frequency⁽¹⁾
1	Leachate Extraction Wells	
2	Leachate Lift Station	
3	Leachate Forcemains	
4	Leachate AST	

Note:

- (1) Frequencies shown on table for routine maintenance activities are estimated frequencies. However, if the item does not require maintenance based on inspections, then the maintenance will occur on a non-routine basis.
- (2) Table 8-3 has been provided as an example of other maintenance and schedule tables that will be developed during the Pre-Final RD.

8.4 NAPL Recovery System

The following section outlines NAPL monitoring, removal, and disposal procedures including operation, disposal compliance, inspection, monitoring, preventative maintenance, and schedule.

8.4.1 System Description

NAPL monitoring, removal, and disposal procedures consist of wells, active and passive removal equipment and supplies, waste handling, storage, and disposal.

8.4.2 Operation

8.4.3 Disposal Compliance

8.4.4 Inspection

8.4.5 Monitoring

8.4.6 Maintenance

8.4.7 Schedule

Table 8-4
NAPL Recovery System Inspection and Maintenance Schedule
North Sanitary Landfill Site, Dayton, Ohio

Item	Inspection	Frequency
1	Well Inspection	

Item	Maintenance	Frequency
1	Well Head	
2	Downhole Removal Devices	
3	Storage Facilities for NAPL	
4	Other	

8.5 Monitoring Network

The following section outlines procedures for maintaining the physical infrastructure of the groundwater monitoring and LFG probe network including inspection, preventative maintenance, and schedule.

8.5.1 System Description

The groundwater and LFG monitoring infrastructure consists of monitoring wells and LFG probes, monitoring well security, and decommissioning (as needed).

8.5.2 Inspection

8.5.3 Maintenance

8.5.3.1 Downhole Maintenance

8.5.3.2 Exterior Well Maintenance

8.5.4 Schedule

8.6 Institutional Controls

ICs applied to the Site will be maintained to ensure the long-term care of the Site and remedies. A UECA environmental covenant is the primary IC established for the Site. Details are provided in the ICIAP.

SECTION 9

EMERGENCY OPERATING AND RESPONSE PROGRAM

The following are considered specific O&M emergencies that require response/reporting:

- Release of a substance above its specific reporting limit (in pounds or kilograms) as defined by the CERCLA.
- Fire, either on the landfill cover system, general Site area, or associated with the LFG flare;
- On Site accident involving personal injury; and
- A security violation (trespasser) that results in damage to environmental control systems or discharge to the environment.

All release emergencies will be reported to the USEPA and Ohio EPA by telephone within 24 hours of occurrence. The following are the relevant telephone numbers:

USEPA: Mr. Dion Novak, Remedial Project Manager
(312) 886-4737

Ohio EPA: Mr. Scott Glum, Ohio EPA Project Manager
(937) 285-6065

SWPs: Mr. Michael Samples, SWP Project Coordinator
de maximis, inc.
(865) 691-5052 or (865) 548-1875 (mobile)

Other emergencies that will require notification include:

- **Fire:** In the event of a fire, the Fire Department shall be immediately notified by telephoning **911**. Should a fire occur that is related to the operation of the LFG flare, further instruction/direction is provided in the LFG Flare O&M Manual (to be provided by the manufacturer after RA completion). The specific location of the Site is 950 Brandt Pike, Dayton, Ohio 45404. The SWP Project Coordinator will be notified immediately.
- **Personnel Injury:** If an injury to a Site O&M worker occurs, the HASP shall be followed. The SWP Project Coordinator will be notified immediately.
- **Trespassing:** If a trespasser is identified on the Site, the SWP Project Coordinator will be notified immediately. The Dayton Police Department, if needed, shall be notified by calling 911. If there is evidence of previous trespass, such as holes in the fence or cut locks on the

gates, the Dayton Police Department shall be notified using the non-emergency telephone number, which is (937) 333-2677.

A written summary of emergency-response telephone notifications will be submitted to the SWP Project Coordinator by the O&M Manager within five business days. The report shall:

- Identify the nature of the emergency,
- Indicate who was notified, including how and when,
- Provide any insight on how the emergency could have been avoided,
- Identify any corrective measures.

APPENDIX F

SITE WIDE MONITORING PLAN

SITE WIDE MONITORING PLAN

NORTH SANITARY LANDFILL DAYTON, OHIO

Submitted to

USEPA



Submitted by

Geosyntec 
consultants

engineers | scientists | innovators

931 Chatham Lane, Suite 103
Columbus, Ohio 43221

Project Number TR0881

April 2021

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Appendix A	Existing LFG Probe Information
Appendix B	LFG Probe Construction SOP
Appendix C	LFG Probe Monitoring Form
Appendix D	Existing Monitoring Well Construction Table
Appendix E	Monitoring Well Construction SOP & Forms
Appendix F	Monitoring Well Development SOP & Forms
Appendix G	Monitoring Well Sampling SOP & Forms

LIST OF ACRONYMS

CD	Consent Decree
EGMP	Explosive Gas Monitoring Plan
LFG	landfill gas
LNA	local northeast aquifer
MA	main aquifer
MEE	methane, ethane, and ethene
MCL	Maximum Contaminant Level
MS/MSD	matrix spike/matrix spike duplicate
NA	natural attenuation
NAPL	non-aqueous phase liquid
POC	point of compliance
PS	performance standard
OAC	Ohio Administrative Code
Ohio EPA	Ohio Environmental Protection Agency
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RD	Remedial Design
ROD	Record of Decision
SOW	Statement of Work
SWMP	Site Wide Monitoring Plan
TQL	target quantitation limit
USEPA	United States Environmental Protection Agency
UA	upper aquifer

SECTION 1

INTRODUCTION

This Site Wide Monitoring Plan (SWMP) for the North Sanitary (a.k.a. Valleycrest) Landfill (Site) in Dayton, Ohio was developed per Section 6.7j of Appendix B (Statement of Work [SOW] for Remedial Design and Remedial Action [RD/RA]) of the 2018 Consent Decree (CD) for the Site. Per SOW Section 6.7j:

The purpose of the Site Wide Monitoring Plan (SWMP) is to supplement existing RI data regarding the extent of contamination in affected media at the Site; to obtain information, through short- and long-term monitoring, about the movement of and changes in contamination throughout the Site, during and after implementation of the RA; to obtain information regarding contaminant levels to determine whether performance standards are achieved; and to obtain information to determine whether to perform additional actions, including further Site monitoring.

Per SOW Section 6.7j, the SWMP must include:

- (1) *Description of the environmental media to be monitored;*
- (2) *Description of the data collection parameters, including existing and proposed monitoring devices and locations, schedule and frequency of monitoring, and analytical parameters to be monitored and analytical methods employed;*
- (3) *Description of how performance data will be analyzed, interpreted, and reported, and/or other Site-related requirements;*
- (4) *Description of verification sampling procedures;*
- (5) *Description of deliverables that will be generated in connection with monitoring, including sampling schedules, laboratory records, monitoring reports, and monthly and annual reports to EPA and State Agencies; and*
- (6) *Description of proposed additional monitoring and data collection actions (such as increases in monitoring frequency, and/or installation of additional monitoring devices in the affected areas) in the event that results from monitoring devices indicate changed conditions (such as higher than expected concentrations of the contaminants of concern, or groundwater plume movement).*

To ensure that the remedial measures function as designed, and that performance standards (PSs) are met, this SWMP has been developed in accordance with applicable regulations and sound environmental practices to outline monitoring requirements for:

- Non-aqueous phase liquid (NAPL)

- Leachate
- Landfill gas (LFG)
- Groundwater

This document has been prepared as part of the Preliminary (30%) RD and therefore will require revision as part of completing the Pre-Final (95%) and Final RD.

SECTION 2

NAPL MONITORING

This section to be completed as part of the Pre-Final RD. The presence of NAPL will be monitored on a periodic basis in leachate wells NSL-55L and NSL-54L and leachate extraction wells.

SECTION 3

LEACHATE MONITORING

This section to be completed as part of the Pre-Final RD. Leachate hydraulic and chemistry monitoring will be performed to inform operation of the leachate management system and to aid in evaluation of natural attenuation (NA).

SECTION 4

LANDFILL GAS MONITORING

4.1 Introduction

The LFG monitoring program or an Explosive Gas Monitoring Plan (EGMP) has been developed per Ohio Administrative Code (OAC) 3745-27-12 (Explosive Gas Migration Monitoring for a Sanitary Landfill Facility). LFG compliance will be evaluated using LFG probes installed around the perimeter of the Site.

4.2 Legal Description of Landfill Property

This section to be completed as part of the Pre-Final RD.

4.3 Geologic and Landfill Characterization for Potential LFG Pathways

This section to be completed as part of the Pre-Final RD.

4.4 Explosive Gas Generation Potential

This section to be completed as part of the Pre-Final RD.

4.5 Proposed Explosive Gas Monitoring System

4.5.1 Occupied Structures

This section to be completed as part of the Pre-Final RD.

4.5.2 Perimeter LFG Monitoring Network

The existing LFG monitoring network is shown on **Figure 4-1** and construction details are summarized in **Appendix A**. Proposed locations of additional LFG monitoring probes are shown on **Figure 4-1**. New probes will be constructed as detailed on **Figure 4-2**. Screened intervals proposed for each new LFG probe are provided in **Table 4-1**.

4.5.3 Method of Construction

LFG probe construction involves advancing a direct-push probe or augers to the desired probe depth, placing a threaded polyvinyl chloride (Schedule 40, 20-slot) pipe, and backfilling with a gravel filter pack for the entire depth of the screened interval. The remaining borehole will be backfilled with a coarse sand with pelletized bentonite and sealed with hydrated bentonite pellets or cement-bentonite grout. The surface finish includes a concrete apron designed to shed water

with an aboveground casing protected by a locking metal vault. LFG probe construction procedures and forms are provided in **Appendix B**.

4.5.4 Sampling and Reporting

4.5.4.1 LFG Field Sampling

LFG will be field monitored using a Landtec® or Envision® gas field meter (or equivalent) capable of reporting oxygen, methane, pressure, temperature, carbon dioxide, and balance gases.

LFG probes will be measured by connecting four-gas meter to the LFG probe and allowing the reading to equilibrate prior to recording the data. A pressure reading will be taken prior to purging the probe. Monitoring sheets are provided in **Appendix C**.

4.5.4.2 LFG Reporting

This section to be completed as part of the Pre-Final RD.

4.5.4.3 LFG Data Monitoring Quality Assurance/Quality Control

The gas field meter will be calibrated using calibration gas prior to each monitoring event. Calibration records will be kept with LFG monitoring data. LFG monitoring field measurements will be recorded on field sheets or in dedicated field logs and tabulated electronically for data backup and evaluation purposes.

4.5.5 Abandonment Procedures

This section to be completed as part of the Pre-Final RD.

4.5.6 Contingency Procedures

This section to be completed as part of the Pre-Final RD.

4.5.7 Certification Report

This section to be completed as part of the Pre-Final RD.

SECTION 5

GROUNDWATER MONITORING

5.1 Introduction

The groundwater monitoring program has been developed per OAC 3745-27-10 (Ground Water Monitoring Program for a Sanitary Landfill Facility). Groundwater monitoring wells constructed during the RA will be designed, constructed, developed, and sampled in accordance with the Ohio Environmental Protection Agency (Ohio EPA) Technical Guidance Manual (Ohio EPA, 1995) and updates.

5.2 Existing Monitoring Well Network

The existing monitoring well network, shown on **Figure 5-1**, consists of wells inside and outside the limits of waste with screened intervals in the Upper Aquifer/Local Northeast Aquifer (UA/LNA) or Main Aquifer (MA). A summary of the existing well construction is provided in **Appendix D**.

5.3 Monitoring Well Design and Construction

Locations of proposed additions to the groundwater monitoring well network were selected in accordance with OAC 3745-27-10 and are shown on **Figure 5-1** (to be provided during the Pre-Final RD). Proposed monitoring well depths and screened intervals are provided in **Table 5-1** (to be provided during the Pre-Final RD). A groundwater monitoring well construction detail is provided on **Figure 5-2**. Monitoring well locations and spacing are based on the existing monitoring well network, groundwater flow direction (east to west in both aquifers), potential off-Site receptors, potential upgradient off-Site contaminant sources, and Site geology and hydrogeology. Monitoring well construction guidance and forms are provided in **Appendix E**.

5.4 Monitoring Well Development

Newly installed wells will be developed at least 24 hours following construction completion. Shallow wells (up to approximately 20 feet deep) will be developed using a peristaltic pump or bailer. Deep wells (greater than approximately 20 feet) will be developed using a submersible bladder pump or bailer. Monitoring well development procedures and forms are provided in **Appendix F**.

5.5 Sample Collection

Samples will be collected following a low-flow sampling procedure. Samples will be managed under standard chain-of-custody protocol for delivery to the lab. Groundwater sampling procedures and forms are provided in **Appendix G**.

5.6 Laboratory Analysis of Groundwater Samples

Groundwater samples will be analyzed for the following:

- Parameters listed in Record of Decision (ROD) Table 4;
- 1,4-Dioxane;
- Parameters needed to evaluate NA.

Groundwater monitoring parameters are provided in **Table 5-2**. Laboratory analytical methods and target quantitation limits (TQLs) are also provided.

5.7 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) samples will be collected during each sampling event. The frequency of QA/QC samples is described in detail in the Quality Assurance Project Plan (QAPP). Sample duplicates, field blanks, laboratory blanks, equipment blanks (if applicable), and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected to evaluate field and laboratory quality control.

Data will be validated per:

- i) The QAPP;
- ii) "USEPA National Functional Guidelines for Superfund Inorganic Methods Data Review", USEPA 540-R-2016-001, September 2016; and
- iii) "USEPA National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-2016-002, September 2016.

5.8 Compliance Criteria

Table 5-3 lists the criteria to be met at the point of compliance (POC), which are Maximum Contaminant Levels (MCLs), or Site-specific background where higher.

Methane, ethane, and ethene (MEE), alkalinity, chloride, nitrate, sulfate, dissolved iron, and dissolved manganese will be monitored to determine evidence of NA. A detailed discussion of how these parameters will be assessed as evidence of NA is discussed in Appendix H of the Pre-Design Investigation Evaluation Report (GHD, 2020).

SECTION 6

REPORTING

The Site wide monitoring reports will include a discussion of field activities, monitoring schedules, sampling schedules, results, and recommendations for subsequent sampling events. Data tables and figures will be provided showing potentiometric surface maps, groundwater elevation data, groundwater chemistry, and LFG field measurements. Laboratory analytical reports and field data sheets will be provided as appendices.

Any proposed modifications to the SWMP will be presented to the United States Environmental Protection Agency (USEPA) for approval. If an expansion of the monitoring network is required, then additional groundwater monitoring wells and/or LFG probes will be constructed as described in previous sections and incorporated into the SWMP. A discussion of the expanded monitoring network will be included in the next monitoring report.

SECTION 7

REFERENCES

- Ohio Environmental Protection Agency, 1995. “Technical Guidance Manual for Hydrogeologic Investigations & Groundwater Monitoring.” 1995-2000.
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- GHD, 2019. “Pre-Design Investigation Work Plan, North Sanitary Landfill, Dayton, Ohio.”
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- GHD, 2020. “Pre-Design Investigation Evaluation Report, North Sanitary Landfill, Dayton, Ohio.” 13 March 2020.